S/C Pilot's total water consumption to date - 87 ounces.

Surgeon Gemini 7 - Houston Surgeon. Good copy your report. The boys are both doing fine, preparing ..... Houston surgeon out.

S/C Roger, thank you.

HOU Gemini 7. Houston CAP COM. We'd like to try those readouts please, go to your ECS O_2.

S/C Going to ECS O_2. Power on F CO_2.

HOU Roger, F CO_2.

S/C Going into F CH_2.

HOU Roger.

S/C Gemini 7 you can put your cryo quantity switch off and we'll take your fuel purge at this time. Fuel-cell purge.

S/C Roger. Cryo quantity switch is off. Stand by for a fuel purge.

HOU Okey, doke.

HOU Gemini 7, Gemini 7, Houston CAP COM. For information, I have just talked to Sue and Marilyn and everything is very fine and very happy on the home front. Gemini crew's status report remains at 3.

END OF TAPE.

This is Gemini Control. We are now 29 hours and 21 minutes into our mission. At this time our spacecraft is passing over the Tananarive tracking station. However, we have no voice contact with the spacecraft at this time and we have had no voice contact for - over the past few stations. The activity aboard the spacecraft and in mission control is at a very low key. There are some experiments that were to take place at this time within the spacecraft. MSC-2 and 3, these are radiation measurements. Measure of radiation both inside and outside the spacecraft using sensor devices. The spacecraft is now on its 19th revolution around the earth. This is Gemini Control at 29 hours 22 minutes into the mission.

END OF TAPE

This is Gemini Control. We are now 30 hours and 8 minutes into our mission. Spacecraft Gemini 7 is now passing over the Pacific Ocean and is reaching for the eastern coast of the United States. It is on it's nineteenth revolution over the earth. A few minutes ago as they passed the Hawaiian tracking station, we had a medical data pass on the pilot - pilot Jim Lovell - and at this time we will play back the taped voice communication between the spacecraft and the Hawaiian tracking station.

HAW Gemini 7, Hawaii Cap Com.

S/C Go ahead, Hawaii.

HAW Would the pilot please put the oral temperature thermister in his mouth, please.

S/C Roger, it's in his mouth.

HAW Roger.

S/C Are you receiving the temperature.

HAW Roger Gemini . . . it's coming now, could we go ahead with your blood pressure? Cuff is full scale . . . cuff is full scale.

S/C Roger, cuff bleeding off very slowly.

HAW It's been a good blood pressure, standing by for exercise on your mark. Seven, when your cuff was bleeding off, it did not reach full scale . . . full scale. It was a good blood pressure, standing by for your food, water and sleep reports.

S/C They are the same that we gave to Texas, haven't had anything to drink, or sleep, or eat since then.

HAW Roger, Gemini 7. Okay, can you give me some data on your S-6, please.

S/C Roger, we are not sure we found . . . we took a picture of a storm out there but it didn't look too big.

HAW Okay, what was your PCA? . . . approach at this time.

S/C Used the time that was given to us and took a picture on the . . . we think we saw, we did not see anything that looked like a big tropical storm.

HAW Okay, thank you . . . Hawaii just standing by.

S/C Thank you.

HAW Flight, Hawaii

Flight . . . Go ahead

HAW Okay, did you copy that about S-6?

Flight That's affirmative

HAW Okay, we got your dump.

Flight Very good. How's your TR clock at this time, Hawaii.

HAW TR clock is good - don't think we have a problem with that clock.

Flight Okay, thank you.

This is Gemini Control. We are now 30 hours and 20 minutes into our Gemini 7 mission. At the present time our spacecraft is on its 19th revolution over the earth and is approaching - just approaching the west coast of South America . While over the Guaymas tracking station recently - a few moments ago - the crew was advised of a plan and given step by step directions to test the photometer which is used in the D-5 celestial navigation experiments. These experiments have been delayed because the photometer has a malfunction indication. And at this time we will play back the voice tape communication between the spacecraft Gemini 7 and the Guaymas tracking station.

GYM I have solid TM.

Flight Roger Guaymas

GYM Looks good on the ground flight.

Flight Roger

GYM Gemini 7, Guaymas Cap com.

S/C Go ahead Guaymas.

GYM Roger. All systems look good here on the ground. I have a malfunction check for you to run on your D-5 photometer if you are ready to copy.

S/C Standing by Guaymas.

GYM Roger. This should be done during the night time before you begin your sleep period. There are nine sequences to this.

Sequence no. 1 - place day-night switch to night.

Sequence no. 2 - place your hand over the front lens.

GYM Sequence no. 3 - Turn cam wheel full down.

S/C Full down Guaymas?

GYM Roger

S/C Sequence 2 - place hand over front lens.

Sequence 3 - turn cam wheel full down

Go ahead.

GYM Roger

Sequence 4 - Verify motor running by sound. We would like an answer to this later, either yes or no.

Sequence 5 - Press calibration button down.

Sequence 6 - Report color of reticle. We want an answer on this either red or green.

Sequence 7 - Switch day-night switch to day.

Sequence 8 - Press calibration button.

Sequence 9 - Report color of reticle either red or green. We will want an answer on this sequence.

I don't have anything else for you here. Everything looks real good here on the ground.

S/C I don't know whether I will be able to - the ah - oh I'm sorry.

GYM Roger

That was taped voice communication between spacecraft Gemini 7 and the Guaymas tracking station. At this time we are now 30 hours 23 minutes into our flight mission and according to our flight plan the crew aboard Gemini 7 will now engage shortly in some exercises, onboard exercises.

These will consist of using the bungee cord exerciser and a series isometric exercises. The isometric, of course, is merely exerting pressure from one muscle against another and they have a series of these exercises worked out. Following the exercise period the flight plan calls for a period of housekeeping and at this time, during the housekeeping period the crew will be busy stowing away the articles that they have been using throughout this long day in space to take care of the various experiments that were attempted and getting them set - stowed away in place so that they can ready for their sleep period which should come up in approximately 45 minutes. Both crewmen plan to sleep at the same time tonight. The spacecraft now has just started its 20th revolution. We are now 30 hours and 24 minutes into the mission. This is Gemini Control

END OF TAPE

This is Gemini Control. We are 31 hours and 20 minutes into our Gemini 7 mission. At the present time spacecraft Gemini 7 is passing over the Coastal Sentry, the tracking ship located in the Pacific. It is on the 20th revolution around the earth. We have had a voice communication with spacecraft Gemini 7 and we will play back for you now the tape of that voice communication between our spacecraft and the ground tracking station, or tracking ship in this case. One of the objects of this communication was the test that was run on the photometer which is the instrument the astronauts were to use to run some celestral navigation experiments. And we hope that we will be getting some results of this test during this pass. We give you now the taped voice communication between the spacecraft and that tracking ship.

CSQ Gemini 7 CSQ

S/C Go ahead CSQ, Gemini 7.

CSQ Roger. You may turn off your M-1 cuff for your sleep period scheduled to begin after RKV's next pass.

S/C Okay . . . think we will.

CSQ Roger. Gemini 7 did you originally report your reticle as green and then report it as red during the test that you ran?

S/C Just a minute I will let Jim talk to you. He did it.

Flight CSQ CAPCOM, Houston flight.

CSQ Go ahead flight.

Flight Roger. In the initial report he gave us of the value we believe he reported it as green.

CSQ Roger flight.

CSQ CSQ Gemini 7. On your initial report on your reticle did you report it as green, and then report it as red when you ran the test?

S/C Roger. In the day side the reticle is red when you go to the night it is green.

CSQ Roger, understand

Flight We copied but I don't really understand it yet. We may be back to you later.

CSQ Roger

CSQ CSQ Gemini 7 we are standing by for your flight plan report.

S/C CSQ we are right in the middle of eating. We don't have anything to report other than we have done everything thats called out and everything that's listed in the flight plan.

CSQ Roger, understand.

S/C We are eating right now.

CSQ Roger.

CSQ Did you get that pickup on that reticle report flight?

Flight Say the exact words he gave you.

CSQ He said it was red in the day time and green at night.

Flight I still don't understand that I guess we will have to go back to the crew. The guys here in the flight crew SSR don't know what it means either.

CSQ Roger

Flight I think what we want to do is go back to his initial report. In other words the first time he told us he had a problem with the reticle.

CSQ Okay

CSQ Gemini 7, CSQ

S/C Go ahead please

CSQ We still want you to elabrate a little on your reticle problem. Would you go back to your first indication of a problem with the reticle.

S/C Roger. The first indication of a problem with the reticle was the fact that the reticle - that the photometer would never be red. We always had it green. We had the scale full down, all the lights out but the . . . would stay green. We couldn't calibrate the the photometer.

CSQ Understand you could not calibrate. Standby Gemini 7

Flight Now have him reiterate what he got on the test. That test we asked him to run and he gave the report to the RKV. We got his initial failure report and we understand that now. Now we would like -

CSQ You want a repeat on the report he gave to the RKV on the test?

Flight Yes and get us the data he gave over there. What we are trying to do is correlate the data now.

CSQ Roger.

END OF TAPE

This is Gemini Control. We are now 32 hours and 5 minutes into the mission of spacecraft Gemini 7. At the present time our spacecraft has just started it's 21st revolution just a few minutes ago and it is approaching the Rose Knot tracking ship which is located off the east coast of South America. We now have communication with the spacecraft Gemini 7 and we will bring you this communication live at this time.

RKV Houston Flight, RKV Cap Com.

Flight Go, RKV.

RKV Roger, all systems are go, we are transmitter TX.

Flight Okay, do you see his radar transponder on?

RKV Say again, Flight.

Flight Do you see the voltages from the radar transponder?

RKV Stand by (garbled) Flight, RKV

Flight Go, RKV

RKV We'll get your back room readout in just a moment.

Flight Okay, I'm not interested in the readout. I just want to make sure it's on.

RKV Ah, roger. Gemini 7, RKV Cap Com.

S/C RKV, Gemini 7 here.

RKV Roger, all systems are go. We're standing by for the purge.

S/C Ah, roger, here is the note on the fuel cells. A little while ago the section 1 delta P light came on momentarily.

S/C . . . switched between 2B and 2C. Each time we switched, the section 2 light would momentarily flicker off and then come back on again.

RKV Ah, roger.

S/C Only on the last switch the light went out and stayed out.

RKV That the section 2 delta P light.

S/C Right, so that . . . now we have another one off.

RKV Roger.

S/C Now, we'll . . . purge.

RKV Ah, roger. Did you copy, Flight?

Flight Roger, you're going to have to break it down for us. I didn't copy all of it but I don't want to bug the crew. Give it to us from your voice recorder.

RKV Ah, roger. Would you place the quantity read switch to ECS 02. Would you go to fuel cell 02. Okay, would you go to fuel cell H2. You can turn the quantity read switch off. Your next purge will be over Carnarvon on rev 27 at an elapsed time of 42 plus 23. Gemini 7, do you copy?

S/C Roger, understand 42 plus 23 for the next purge.

RKV That's the time. Now we would like you to stow the photometer and we will give you a complete briefing at the end of the sleep period regarding what we think the problem is.

S/C Roger, thank you. I'm coming off with the transponder if you have your readings.

RKV Roger. During the previous purge, did you notice any venting of H_2?

S/C We didn't notice it, but it is difficult to tell because we have all the screens up at the windows and we don't know how we're coming.

RKV Roger, did you copy, Flight? Ah, Houston Flight, RKV Cap Com.

Flight Stand by RKV. Go ahead RKV. Go ahead RKV.

RKV Roger, Flight, the purge has been completed. The crew advised that they did not notice any venting of H_2 during the previous purge. They've got the curtains drawn. Did you copy all that air-ground.

Flight Roger, we copied it Bill, we would like to find out their intentions for pumping up their RSS and the ECS pressures to begin their sleep period.

RKV Roger. Could you give us the levels that you are going to leave your RSS pressures at prior to your sleep period.

S/C Roger. 600 ECS 02, 450 RSS 02, and 450 hydrogen 02.

RKV Roger. Did you copy, Flight?

Flight Affirmative.

S/C RKV, do you want the RSS heaters on at this time?

RKV Stand by. Do you want the heaters on, Flight?

Flight Affirmative.

RKV That's affirm.

S/C Roger, it's on now.

Flight What were those pressures that he's going to hold on RSS.

RKV 02 at 600 -

S/C Purging complete.

RKV Roger. 02 at 600, H2 is 450 and 450.

Flight That's ECS 02.

RKV That's affirm.

Flight Okay, that sounds good.

RKV Now you both go for your sleep period after our LOS. Gemini 7, RKV

S/C Gemini 7, go ahead.

RKV Roger, you'll both go for your sleep period after LOS.

S/C Roger, will do.

RKV Flight, RKV.

Flight Go ahead, RKV.

RKV TR lags by 125 milliseconds.

Flight Roger. Okay, everything looks pretty good. Looks like we're in for a long sleep. I'd be interested in getting that dumped tape over Hawaii here because I'd like to find out what he had

to say and what really the indications were on that fuel cell purge there.

RKV Roger. He's going now with both delta P lights out.

Flight Roger. I don't mean the fuel cell purge there - I mean the indications he had when switching.

RKV We've had LOS. All systems go at LOS, Flight.

That was live conversation between spacecraft Gemini 7 and the Rose Knot tracking ship off the east coast of South America. Our spacecraft is now in it's 21st revolution around the earth. It is 32 hours and 14 minutes into the mission of the Gemini 7 spacecraft and our crew consisting of command pilot Frank Borman and pilot James Lovell are going to settle down now for a 10-hour sleep period. Activity will be kept at a minimum, we will have no communication with the spacecraft, voice communication, that is. Everything will be handled by telemetry and the boys are looking forward to a good long sleep period. This is Gemini Control 32 hours and 15 minutes into the mission.

END OF TAPE

GF

GEMINI 7/6 MISSION COMMENTARY, 12/5/65, 9:50 p.m. Tape 90, Page 1

This is Gemini Control. We are 32 hours and 20 minutes into our mission. Spacecraft Gemini 7 at the present time is on its 21 st revolution over the earth and is now coming up on the southern coast of Africa - the southwestern coast of Africa. We had a conversation which we did carry live with the Rose Knott tracking ship just a few minutes ago as the spacecraft passed over that tracking ship. And after a fuel cell purge the crew is settling down now for a 10 hour sleep period. Our flight director has requested the ground tracking stations to keep voice communication to an absolute minimum throughout this 10 hours. And we do not expect to have voice communication unless it is absolute necessary. This is Gemini Control, 32 hours 21 minutes into the mission.

END OF TAPE

This is Gemini Control. We are now 32 hours and 46 minutes into our mission. And at the present time our spacecraft is about to pass over the Pacific Ocean on its 21st revolution over the earth. Our flight crew is in a 10 hour sleep period and voice communication will be held to an absolute minimum throughout the next 10 hours. We have a report now from Cape Kennedy where preparatinns have been going on for the launch of spacecraft Gemini 6. The report says that preparations for this launch have progressed smoothly. The pad crews estimate that they are about 6 hours ahead of schedule in their preparation for final systems test which will begin at midnight Monday. The Gemini 6 spacecraft was mated with the launch vehicle at 12:40 p.m. e.s.t. today. Some 3 and $\frac{1}{2}$ hours earlier than originally planned. Throughout the day checks of the electrical, coolant, and oxygen systems, the ground support equipment and umbilicals, the test of cryogenics servicing lines and a cabin leak check were completed successfully. During the rest of tonight and tomorrow work will go forward for the final systems checks and the launch vehicle crews are preparing for electrical mating of the spacecraft with the booster. This is scheduled for early Tuesday morning. This is Gemini Control at 32 hours and 48 minutes into the mission.

END OF TAPE

This is Gemini control. We are now 33 hours and 20 minutes into the mission of spacecraft Gemini 7. At this time spacecraft Gemini 7 is on its 21st revolution over the earth. On the tail end of that revolution and will shortly be in its 22nd revolution in about 15 minutes. Here at the Mission Control Center the blue team of flight controllers are arriving on scene and will take over direction of this flight beginning at 11:00 p.m. central standard time, and carry on through the night until 7:00 a.m. eastern standard time. Aboard spacecraft Gemini 7 our flight crew is in a 10 hour sleep period which began a little over 1 hour ago. As yet we do not have any indication or any ground telemetry that indicates to us whether the pilots - the crew is asleep or awake. We expect to get some data on that momentarily but it has not yet arrived at the control center. This is Gemini control at 33 hours and 21 minutes into the mission.

END OF TAPE

This is Gemini Control, 35 hours 20 minutes after liftoff. Gemini 7 spacecraft is presently in acquisition range of the tracking ship Rose Knot, however, there is no voice communications going on. The spacecraft communicator aboard the Rose Knot, Bill Garvin, has been in conversation with Flight Director John Hodge here in Mission Control. He said everything looks good. They had a good telemetry dump which was commanded from the ground. The spacecraft just passed into daylight side of its orbit while I was looking at the large map on the front of Mission Control Room here. It suddenly went yellow, which indicates that it's gone to the daylight side of the orbital track. The next station to acquire them will be the Ascension Island voice remoting station in approximately three minutes. At 35 hours and 21 minutes after liftoff, this is Gemini Control

END OF TAPE

This is Gemini Control. 36 hours and 20 minutes after lift-off. Gemini 7 spacecraft at the present time is directly over the Canton Island voice remoting station in the Central Pacific, toward the end of the 23rd revolution. During a recent pass over the tracking ship Coastal Sentry, just south of Japan spacecraft communicator, Charles Lewis, told flight director, John Hodge, that everything looks good. Here in mission control there's a large television screen on the front of the control room that shows the flight plan activities. At the present time the thing is almost completely blank down the center where normally the crew activities are listed it shows a sleep period for both men down the right hand side. Things are fairly quite here in Mission Control and are settled down for a long night until the crew wakes up. At 36 hours and 21 minutes after lift-off this is Gemini Control.

END OF TAPE

This is Gemini Control 37 hours and 20 minutes after liftoff. Gemini 7 spacecraft is now crossing the Arabian Peninsula at the beginning of it's 24th revolution. Here in Mission Control it has been decided to ignore the delta P light that has been lit since liftoff practically. They've decided that it is a spurious signal and of no consequence. During a recent pass over the tracking ship Rose Knot the spacecraft communicator aboard the Rose Knot reported that the ground readouts of the fuel cell cryogenic reactants showed 188 pounds for the hydrogen, 356 pounds for oxygen and the telemetry dump accomplished over the Rose Knot - all data looked good. The display being generated here by the Flight Dynamics people for the orbital ephemeris or the shape of the orbit now shows that the Gemini 7's orbit has a perigee of 119.8 nautical miles and an apogee of 172.9 nautical miles for an estimated lifetime of 30 days. The next station which will acquire the spacecraft Gemini 7 will be the tracking ship Coastal Sentry approximately 15 minutes from now. At 37 hours and 21 minutes after lift-off, this is Gemini Control.

END OF TAPE

This is Gemini Control 38 hours and 20 minutes after liftoff. Gemini 7 will be acquired in approximately 7 minutes for the last pass tonight of the tracking ship Rose Knot off the coast of South America, at which time the Gemini 7 will begin it's 25th revolution. Both crewmen are still asleep and during the last pass over the tracking ship Coastal Sentry all systems are reported go. At 38 hours and 20 minutes after liftoff, this is Gemini Control.

END OF TAPE

This is Gemini Control, 39 hours and 20 minutes after lift-off. Gemini 7 at the present time is just north of New Guinea in the Southwest Pacific nearing the end of the 25th revolution. Reports from the tracking station sounded like a broken record. It says all systems are go in each pass. Of course that disappoints no one here in the Mission Control. That's what we like to hear. Both the tracking ships Coastal Sentry and Rose Knott have been released by the flight director, John Hodge, since the orbit tracks have proceeded westward this morning and it will be late tonight before they begin to cross these ships' acquisition areas again. The next station to acquire the spacecraft will be the Canary Island station 52 minutes from now. At 39 hours and 21 minutes after lift-off this is Gemini Control.

END OF TAPE

This is Gemini Control 40 hours and 20 minutes after lift-off. Gemini 7 spacecraft is presently over north central Africa and is just about to leave the acquisition range of the Canary Island station where the spacecraft communicator has reported that both crewmen are still asleep and that all systems are go. The spacecraft has just begun the 26th revolution. The next station to acquire the spacecraft will be the Carnarvon station, apparently. Actually, Woomera, Australia station which is remoted into Carnarvon which will be 27 minutes past the hour. The crew still has something like 2 hours of sleep remaining which they expressed desire for a total of 10 hours sleep. The Red Team of flight controllers should be coming into the Control Center within the next 10 or 15 minutes for the hours hand-over period before relieving the Blue Team. At 40 hours and 21 minutes after lift-off, this is Gemini Control.

END OF TAPE

This is Gemini Control 41 hours and 20 minutes after lift-off. Gemini 7 at the present time is over the South Central Pacific nearing the end of the 26th revolution. The next station which will acquire the spacecraft with it's sleeping crew will be the Antigua station in the Eastern Test Range in 16 minutes. Members of the Red Team of flight controllers are beginning to come into the Control Room here getting briefed by their predecessors the Blue Team and shortly before they began to come in, Blue Team flight director John Hodge went round the horn, as they say, and checked all the flight controller positions to see if there were any problems or items that needed to be discussed before passing them on to the Red Team of flight controllers. At 41 hours and 20 minutes after lift-off, this is Gemini Control.

END OF TAPE

This is Houston. We're 42 hours, 11 minutes into the mission, and the Red Team Flight Director has decided to wake the crew up or at least end their sleep period in about ten minutes as the spacecraft comes over Canarvon. The first thing that the crew will do is to perform a fuel cell purge. We have not had a purge now in about ten hours. The weather today says that weather conditions will continue to be good in the areas of primary concern to the Gemini 7 mission for at least the next two days. This is Gemini Control.

END OF TAPE

This is Houston, 42 hours 53 minutes into the flight. It took several calls to wake the crew up this morning, but we finally succeeded over Carnarvon. Jim Lovell came back fairly - in a fairly cheery voice. We have got the conversation of that pass. We will play it for you now.

Carnarvon Cap Com: Gemini 7, Carnarvon Cap Com.

Carnarvon Cap Com: Gemini 7, Carnarvon Cap Com.

Lovell: Go ahead Carnarvon, Gemini 7 here.

Carnarvon Cap Com: Roger Gemini 7. Good morning from Carnarvon. Everything looks good here on the ground. We have a fuel cell purge coming up this pass and we also have a flight plan update for you.

Lovell: Roger, let me do the fuel cell purge now, my chef here is getting breakfast ready.

Carnarvon Cap Com: Roger.

Lovell: The purge is starting now. I am ready to copy the update.

Carnarvon Cap Com: Roger, Okay, the first one I have for you on the flight plan update is 09 43 04 07, remarks, rev 10-7, longitude, 99.0, degrees West, 12 58 24 late Ascension. The next update at 9 43 10 00, sequence 01, transponder test at Antigua, time off at 43 18 00. The last item, time 43 58 00, flight plan update at Carnarvon, left 28. D-5 check procedure to be given over State pass. Do you copy?

Lovell: On that last update you just want us to check the D-5, or check with you on D-5 and they are going to give us the word over the States. Is that what you mean?

Carnarvon Cap Com: That is affirmative. The procedure will be given to you over the States.

Carnarvon Cap Com: They have a rather long flight plan update standing by for you. You will be hearing that over Antigua.

Lovell: When we went to bed the Delta P light was out, and when we got up this morning, it was back on.

Carnarvon Cap Com: Roger. All indications we have is that there is no problem. It is just a low setting, that's all, slightly touchy.

Houston Flight: Carnarvon, Houston Flight.

Carnarvon Cap Com: Go ahead, Houston Flight.

Houston Flight: Tell him Chris Kraft suggests that he put a piece of tape over it.

Carnarvon Cap Com: Chris Kraft just suggested that you put a piece of tape over that light.

Lovell: I probably would, but I am afraid that it would burn if it gets hot.

Carnarvon Cap Com: Roger.

Lovell: Is Mr. Kraft up so early?

Carnarvon Cap Com: Righto, he just came on about 10 minutes ago.

Houston Flight: I've been on for an hour and a half young man.

Carnarvon Cap Com: Houston Flight just advised me that he has been on for an hour and a half now.

Carnarvon Cap Com: Flight, everything is looking good here during the purge.

Lovell: The darn control valve is cycling again.

Houston Flight: How are the temperatures?

Carnarvon Cap Com: I'll have them for you shortly.

Lovell: The out temp is minus 10 degrees.

Lovell: It looks like that cycling rate is approximately 35 to 40 degrees.

Houston Flight: Carnarvon, we think you probably - he misunderstood your flight plan update, that is actually a PLA block update, is it not?

Carnarvon Cap Com: We are passing up .....

Houston Flight: That will be passed up to him.

Carnarvon Cap Com: Oh, I was under the impression there was going to be this long flight plan update. The one on 12 54?

Houston Flight: No, the Antigua is going to be a flight plan update, but this 43 58 is a PLA update at Carnarvon on rev 28.

Carnarvon Cap Com: I told him that but what he was questioning was this information on the D-5 procedure to be given on the State pass.

Houston Flight: Rog, but you called it a flight plan update. Don't worry about it.

Carnarvon Cap Com: Oh, okay, sorry about that.

Carnarvon Cap Com: We had LOS before we had a chance to get the cryo readouts on this thing.

This is Gemini Control again here. We have information from the Cape indicating that they are running fully 14 to 16 hours ahead on their scheduled work on the spacecraft. The booster is maintaining at least as good a schedule, approximately 2 shifts ahead. We are very encouraged by the work, they are going through the checkouts today, they are back using the test loop here which comes into our Control Center in which we can monitor here and Charles Mathews here, our Program Manager, along with several other of his assistance are in conference now with the Flight Director, Chris Kraft, looking at some of the early launch possibilities as discussed yesterday in the afternoon news conference. There is no definitive word at this point, but we are still looking at that 8th day possibility. This is Gemini Control Houston.

END OF TAPE

Houston here. 43 hours and 21 minutes into the flight. We have gone through a rather long update conversation between Elliot See and both crewmen. Toward the tag end of this conversation, which probably runs 8 to 10 minutes in length, Elliot asked the question, "How do you feel about taking your suit off?" - the question directed at Lovell who is programmed to be the first to take his suit off. We didn't get an answer to the question as we moved out of range, but we expect to shortly. The Flight Director has advised, after consultation with the surgeon, that it is an appropriate time for Lovell to go ahead with the suit off experiment. And if they concur, he probably will be taking it off fairly shortly. We have the tape of the Antigua pass. We'll play it for you now.

HOUSTON Gemini 7, Gemini 7, Houston Cap Com. How do you read?

HOUSTON Gemini 7, Gemini 7, Houston Cap Com. How do you read?

s/c Read you, Houston.

HOUSTON Roger, 7. Would you cycle through your quantity read switch. Go to the first position and I'll tell you when to switch to the next one.

s/c Roger. We're on ECS O_2.

HOUSTON Roger. And good morning.

s/c Good morning to you.

HOUSTON I've a fairly lengthy flight plan update for you here. Are you ready to copy.

s/c Stand by a second.

s/c Houston, go ahead. I'll copy.

HOUSTON Roger. At time 44 43 00, crew status report on the command pilot. At the Cape. D5 - this will be a check on the D5 instrument. Time 45 24 00. Let me first give you a little briefing here, Frank. It appears that the photo tube was saturated during the previous D5 run - the ones where you've had

trouble. We want to advise you not to turn the photometer on until you're in total darkness, when in the night mode, or without a filter when in the day mode. If you happen to turn it on, you may saturate it for 15 to 20 minutes and it would not work properly through that period of time. Now, some instructions here. Delete the first star in the D5 sequences 01 and 02. Are you with me so far?

s/c I'm with you but I don't agree that - we've never had that on when there was any light around. But we'll go ahead and try it.

HOUSTON Roger. Would you switch quantity read to fuel cell O_2.

s/c O_2.

HOUSTON OK. Here is the test procedure we would like you to run on it. Turn photometer to on at sunset plus ten minutes. Align on any bright star and calibrate. Release button and track star for 30 seconds. This is just to check on the instrument. It does not have to be a star going over the horizon. Do you copy?

s/c Roger. We've already tried this but we'll try it again.

HOUSTON Roger. The only thing that seems to make any sense to us, Frank, is that you may have gotten it saturated some times and caused it to not work properly. You have to be careful not to let it see any light. We think even the fuel cell Delta P light might be enough to saturate it.

s/c OK.

HOUSTON Would you switch quantity read to fuel cell H_2.

s/c Roger.

HOUSTON OK. Next update. At 45 32 00, crew status report on the pilot. That's at Carnarvon. 46 14 00, Go or No Go at Texas. 46 20 19, sequence 02, transponder test. Pitch 30 degrees down, yaw 17 degrees left, transponder on at 46 10 00. Copy so far?

s/c Roger. Go ahead.

HOUSTON D4, D7. 46 51 40, sequence 413 plus 414, mode 02. Time 40 08 00, purge fuel cells. You can turn the quantity read switch off now.

s/c Elliot, I missed you on the D4, D7. When you started out " D4, D7 - 46" then you faded out.

HOUSTON Roger. Time was 46 51 40, sequence 413 plus 414, mode 02. Do you copy?

s/c Roger. I got you.

HOUSTON Time 47 08 00, purge fuel cells. D4, D7, 47 55 31, sequence 430, mode 04, pitch 35 degrees down, yaw 10 degrees right, 30 miles east of Cape lighthouse. Do you copy?

s/c Roger.

HOUSTON Time 48 00 00, eat period. S5, 48 51 00, sequence 07, mode 01. S8, D13, 49 25 46, sequence 02, pitch 30 degrees down, yaw 11 degrees right, closest approach 49 26 41. Do you copy?

s/c Loud and clear.

HOUSTON Right after that S8, D13, you'll have another chance to catch a picture of Houston. The closest approach time is 49 27 42. And we figure you would have to yaw 28 degrees left from where you end up on S8 and then pitch up to acquire Houston. Do you copy.

s/c Well give it a try.

HOUSTON Roger. Time 49 28 00, critical tape dump at the Cape. We're probably going to lose contact here pretty shortly. I'll just keep going. Do you read?

s/c Fine.

HOUSTON MSC 2 and 3, 49 50 00, sequence 62, off at 66 00 00. D4, D7, 49 46 00, have we lost you?

s/c Negative.

HOUSTON Roger. How do you feel about taking your suit off now, Jim? Turn your transponder off - now we've lost him.

Houston again here, 43 hours, 31 minutes into the flight. The Canary pass is completed now. The crew was advised that the ground had no objection to their proceeding with the first suit doffing. This would be for Lovell. The pilots agreed that they're ready to go ahead although they said that they wanted to find a proper period of time. They did not indicate exactly when they would start. They said it requires some 8 to 10 minutes and they are ready to - they'll advise us when they're ready. We have the Canary tape and we'll play it for you now.

CYI Ok. Would you give us the signal strength with the C-band transponder.

s/c Rog.

CYI . . . C-band transponder. Do you copy?

s/c Loud and clear, Jack.

CYI Roger. Did you copy the flight plan completely from the States?

s/c I believe so. We're transposing it onto our flight plan now.

CYI Ok. The last two items were the MSC 2 and 3 and the D4, D7.

s/c I did not get the last D4, D7.

CYI OK. Are you ready to copy?

s/c Roger. Ready to copy.

CYI OK. D4, D7, 49 46 00, sequence 406, mode 02, mode IR off. I've got one more item. 50 00 00, exercise period.

s/c . . .

CYI No.

s/c We have copied that and Houston asked us about taking off the suit. Tell them that we will be glad to take off the suit at their command during a slack period, but it requires some time to do it.

CYI OK. In the event that you do this we'd like you to keep us informed on your status and how you feel. That's - as much as you can, keep us informed.

FLIGHT Canary, tell them that we're ready to have them go ahead at his choice.

CYI At your discretion you can take the suit off. It's your choice.

s/c Roger, understand.

CYI Canary.

HOUSTON Go ahead.

CYI Roger. On our position, we have ECS control valve at about 39 degrees and radiator outlet temp at about 12 degrees. Right now it's 37 and 7, respectively, it seems that as the control valve outlet temperature drops so, too, does the radiator.

HOUSTON Yes. As the outlet temperature drops it appears to then start oscillating.

CYI Rog. Canary has LOS. At LOS all systems were go.

HOUSTON Roger.

END OF TAPE

This is Houston, 44 hours, 8 minutes into the flight. The spacecraft just passed over Carnarvon station. Apparently the crew has not elected to remove one of the suits yet. They have made no mention of it. We feel certain had they taken the suit off they would have advised us. One other item - during the night we had a fire down at the Ascension Island station in a small building which housed the power supply for our laser experiment there. Apparently it did damage all of the power supply equipment, however, we - it did not harm the laser equipment itself. It was in a separate building. We are rigging up an auxiliary generator which will be used to power the laser equipment during the laser experiment over Ascension. In the Carnarvon pass the crew reported that they again attempted to calibrate their photometer, which is used on the star occultation sightings - the D5 experiment - and apparently it's still acting up. This is a unit supplied by the Avionics Laboratory, Wright Patterson Air Force Base, a piece of equipment built by the Control Data Corporation, Minneapolis. It weighs only 2 and a half pounds, and I guess that's about all the detail they have here on it. Here is the tape conversation of the Carnarvon pass. We'll play it for you now.

s/c Carnarvon, this is Gemini 7.

CRO Roger. Are you ready for this block update?

s/c In just a minute.

CRO Roger.

s/c Block update.

CRO Roger. 30 dash 1, 46 04 12, 15 plus 28; area 31 dash 1, 47 39 40, 14 plus 38; area 32 dash 4, 50 27 35, 16 plus 40; area 33 dash 4, 52 03 30, 15 plus 29; area 34 dash 4, 53 39 02, 14 plus 37; area 35 dash 3, 54 55 18, 17 plus 03; area 36 Delta, 56 46 25, 23 plus 24. The weather in all areas is good. These

are for a rolling reentry. Do you copy?

s/c Roger, I do.

CRO Roger.

s/c Carnarvon, this is 7.

CRO Come in, 7.

s/c We ran another D5 photometer check as requested by Houston, and noted that when we aligned on a star that it refused to calibrate, and with the day-night switch at night, filter off, and the reticle would not go out of the red from a full low-gain to a full high-gain.

CRO Roger. We copy that. It would not go out of the red. Houston, we're relaying to you.

FLIGHT Roger. We caught that.

CRO Houston did you copy?

FLIGHT Roger. We copy that - doing the opposite as the last time he used it.

CRO Houston copies it as being opposite as during the last time that you used.

s/c Roger. The first time we attempted to do the experiment with the same setting, it appeared that the reticle stayed green.

CRO Roger.

s/c The reticle does turn green with the calibrate switch up, but not with it down.

CRO Have you done anything else on it?

FLIGHT If he'll send it down, we'll fix it and send it back up again.

CRO All right. Flight says it would be a good idea if you will send it on down so we can fix it and then we'll send it back up for you

when it's fixed.

s/c Sounds like a good idea.

CRO Right-o.

s/c When you fix it you can send it up with 8.

CRO Ok.

s/c If we could figure a way to get it down to you, we would, believe me.

CRO Right-o. We have LOS.

END OF TAPE

This is Houston at 44 hours, 38 minutes into the flight. The spacecraft is approaching the west coast of Mexico and we should be in contact with them very shortly. The main piece of action during this pass will be a medical crew status report on the command pilot, Frank Borman; among others things Chuck Berry wants to know why their rates jumped up from a fairly steady 60 to about 80 last night at approximately midnight - or no, it was a little after midnight, I'm sorry - about 5 hours into their sleep period. He noticed the rates, looking at their records this morning, he noticed the rates went up slightly for a short period of time over the CSQ. It could be that the station called them, or the crew noticed something, and he just plans to query them on it as well as get a general status on Frank Borman. There have been several references to the transponder tests here during the air-to-ground tapes this morning. This is a transponder being carried in the spacecraft 7. It's just the reverse of the situation we had in Gemini 5, where they had a radar transmitter in the nose of their spacecraft and bounced a signal off a transponder on the ground at the Cape. In this test the Cape will be - has been and will continue in various calibration exercises to bounce a signal off their transponder, which will rebroadcast it back down to the ground. . The cabin temperature in Gemini 7 has been running very closely to the rates observed in Gemini 5. The cabin temp itself is running between 70 and 75 degrees. The suit inlet temperatures holding fairly steadily at 55 to 60 degrees, which corresponds very closely to that observed during the Gemini 5 flight. Texas has been contacted and we're calling the craft now. Let's cut in live.

HOUSTON Gemini 7, reading you slightly garbled. How do you read?

s/c This is 7 reading Houston loud and clear.

HOUSTON Roger. Read you much better now. Like to advise this will

be a UHF 6 pass.

s/c Roger. UHF 6. . . . . read. Frank has the thermometer in his mouth now.

HOUSTON Roger. Tell him to keep it there; we do not have it yet.

s/c Roger.

HOUSTON Jim, just for a minute now. Do you know what the star was that you were checking the D5 experiment on?

s/c On this last pass we used several stars. One was Acrux and we used both Alpha and Beta Centauri.

HOUSTON Big bright ones, then, huh?

s/c Roger. We ran through the original check again, the one you gave us yesterday.

HOUSTON Right. Ok. They were good bright stars. That's what we were trying to pin down.

s/c Roger. They were bright.

HOUSTON Have you got -- has Frank got the oral probe - temp probe - in real good. We're not getting a good reading.

s/c Roger, it's in and also be advised that we were mistaken yesterday. The motor on the D5 is working. Our ears got better today.

HOUSTON Roger. It's very dim. We were doubtful if you could hear it. What's your suit status at the present time?

s/c We're still suited. We found out that we had to open up the zipper between the legs to get comfort. It was too hot down there and we're now fairly well unzippered but our suits are on. We're waiting for a very quiet moment so I can take my suit off.

HOUSTON OK. We want you to understand, completely, that we are clearing you to take it off if and when you desire.

s/c Roger. Understand.

HOUSTON OK. We're going ahead without the oral temp indication there now. I'll stand by for a blood pressure.

s/c Roger. Blood pressure coming through.

HOUSTON Roger. And stand by for the flight surgeon.

SURGEON OK, Gemini 7, blood pressure full scale.

s/c Surgeon be advised that Frank had switched to light weight headset and that the thermometer might not be working.

HOUSTON Roger, we copy.

SURGEON Roger, Jim, I copied that. We only got - it did not go up to, I'm sure, what his body temp is, so it may be a faulty thermometer. That's a good thing to know.

SURGEON Gemini 7, we have a valid blood pressure. You're cleared to do your exercise.

s/c Understand, exercise.

s/c Blood pressure coming down.

SURGEON Cuff is full scale.

s/c Roger.

SURGEON Gemini 7, this is surgeon. You might tell me while we're waiting for this blood pressure to finish up. Did you have the M-1 on all night.

s/c Roger, we had the M-1 on all night. No trouble.

SURGEON The noise isn't as bothersome now as it was yesterday. Is that affirm.

s/c That's right. We're getting used to the noise.

s/c Chuck, do you want a food and water report?

SURGEON Roger, Gemini 7, we have a valid blood pressure. Yes, we'd like

the sleep, food and water report now.

s/c Roger. Had breakfast this morning. We each had about 7 hours of sleep, some of the best sleep we've had in weeks. Total water to date 146 ounces for the command pilot.

SURGEON Roger, copy.

s/c 126 for the pilot.

SURGEON Say again, 126?

s/c 26. Morning food was day 2, meal C. Both of us.

SURGEON Roger, Gemini 7. I copy day 2, meal C.

s/c Roger. That is our fifth meal - our fifth meal.

SURGEON Jim, could you read from your log and give me the meals in sequence Could you read the meal numbers? Do you have those?

s/c Roger, stand by. First meal, day 2, meal A.

SURGEON Roger.

s/c Second meals, day 3, meal 4.

SURGEON Roger.

s/c Third meal, day 2, meal Baker.

SURGEON Roger.

s/c Fourth meal, day 1, meal Baker.

SURGEON Roger, I copy. Jim, we've beenwatching your - the sleep patterns here, and we noticed that there were several times when you were awake last night and particularly it appears, from both your records that there was an awake period at about 37 and a half hours over CSQ last night. Was there some particular activity that had you both awake at that time.

s/c We don't recall any - I think both of us got a good night's rest last night. It really felt great.

SURGEON OK, fine. We'll be looking forward to see what happens with the suit story during the day and be sure and record a time when you finally get it off, Jim, and watch for your - we'll be watching for the barmed data after you get hooked up again.

s/c Will do.

s/c Chuck, this is Frank. I lost the top left-hand lead on the EEG.

SURGEON Gemini 7, say again. Did you say you lost the one - the top left-hand lead on the EEG? Is that affirm, Frank?

s/c Affirmative. It came off some place.

SURGEON OK. You just noticed that now?

s/c It came off during the night while I was sleeping.

SURGEON During the night? OK.

s/c The reason we're eating the food this way is that's the way it comes out on the lanyard, and it's too much trouble - it's almost impossible to try to sort it out in error - I mean, in sequence now.

SURGEON That's perfectly all right, Frank. It doesn't matter except to try and keep track of the meals here. If you can just report it by day and number each time, and now we're up to date, if you'll keep doing that we'll have no trouble. If you'll do that and report the things that you are not eating from each meal, if any, that will keep us up to date.

s/c For Chris' information, our number one Delta P light came on and then both of them went off.

HOUSTON Say again, Frank.

s/c The number one Delta P light blinked on about 15 minutes ago

and then both of them went off and now our friend is off.

HOUSTON Roger.

SURGEON You're aware that you can cut both of the left EEG leads now if you want to, now that you've lost that one.

s/c Didn't know that. I thought they'd want the other three also.

SURGEON The two on the right can continue. But the two on the left now are inoperative.

s/c Let's wait till the four days are up so we don't take any chances on hurting him.

SURGEON Yeah. Frank, I think it'd be best to just leave it for the moment unless it's bothering you. Let's leave it as is and - until we tell you differently, OK?

s/c I couldn't put it back on again, could I, Chuck?

SURGEON I don't think you've got the right paste.

HOUSTON Gemini 7, I'd like to advise you that we have studied the cryo behaviors and we think we've got a good enough handle on them now that we'd be happy for you to use the auto-heater positions on all three during your sleep period. We feel this will regulate the temperature and the pressure just fine for you and you won't need to worry about waking up or controlling it during the sleep period, then we'll go back to manual during the day.

s/c Can you give us a report on what the projected mission completion cryo quantities will be?

HOUSTON Roger, we'll get that for you, Frank.

s/c Hello, Elliot.

HOUSTON Go ahead.

s/c Change that second meal to day 3, meal A. Not 4, meal A.

HOUSTON Roger. And you might turn up your HF. We're going to put some music on here. Did you copy, Gemini 7?

s/c Which one of you?

HOUSTON You can turn up your HF. We're going to put some music out for you,

s/c Thank you.

HOUSTON We'll probably lose contact here pretty soon, but I'll take advantage of the time as long as I can. We would like you to tape record, with your onboard recorder, your thoughts on these station keeping tasks which you did.

s/c Will do.

HOUSTON On your next pass, I'll give you a report on the news.

s/c Thank you.

HOUSTON OK. You should be receiving some music pretty quickly.

HOUSTON Are you receiving the music yet?

HOUSTON Gemini 7, the music should be coming up pretty quickly.

MUSIC

END OF TAPE

Earlier during the Canary pass, Lovell advised that he was going to go ahead with removing his suit. He has not advised yet as to whether he has taken it off, but he said that he was starting to take it off at that time. Elliott is back talking with the crew. Let's go back and see what is happening.

Gemini Control here again. Apparently we were over the hill from Kano and this will conclude this portion of the air to ground conversation at 45 hours 11 minutes into the flight.

END OF TAPE

This is Houston, 45 hours 37 minutes into the flight. The spacecraft is over Carnarvon. The Command Pilot, Frank Borman has just advised that Jim Lovell has taken off his suit and he reports that he is feeling very comfortable. He has not yet plugged in his biomedical tape recorder but he expects to do that momentarily. This is Gemini Control Houston.

END OF TAPE

Gemini Control Houston here, 45 hours 43 minutes into the flight. Frank Borman has confirmed that Jim Lovell has completed his spacial strip tease act. He has the suit all the way off and he has his biomed recorder plugged in. The surgeons here at Houston and Carnarvon had a few anxious moments there which were the subject of some joking back and forth during the period when they got no data. It was explained that it was a time consuming process to get plugged into the biomed recorder circuit. We have the tape of the Carnarvon pass and we are ready to play it for you now.

Carnarvon Cap Com: Gemini 7, this is Carnarvon Cap Com.

Borman: Go ahead Carnarvon, Gemini 7.

Carnarvon Cap Com: Rog. We want to run a test on the L-band transponder. Would you turn it to the on position for us.

Borman: Roger, it is on now.

Carnarvon Cap Com: Roger, and leave it on for approximately one rev.

Borman: Leave it on for one rev.

Carnarvon Cap Com: That's affirmative. We will be turning it off over Carnarvon on the next pass.

Borman: Let's see, we have a test over the Cape with it one of these days. Just a minute.

Houston Flight: Same rev.

Carnarvon Cap Com: Thank you Flight. Gemini 7, that will be on the same rev.

Broman: Okay.

Borman: We are showing negative clocks from the spacecraft at the present time. I've transmitted TX to land quite a few times. Had

rejects the whole time. We are showing no clocks. All the other command doing okay.

Carnarvon Cap Com: GT-7, Carnarvon.

Borman: Go ahead.

Carnarvon Cap Com: Roger. They will update the computer for you during the GO--NO-GO over the States and that is the one that occurs at 46 hours 14 minutes and they will also tell you when they want you to turn the computer to the on position.

Borman: Okay, thank you.

Carnarvon Cap Com: Roger.

Borman: Jim is all out of his suit and comfortable.

Carnarvon Cap Com: Very good.

Houston Flight: Are you seeing pilot data?

Carnarvon Cap Com: Negative.

Houston Flight: Check the bio-plug.

Carnarvon Cap Com: Gemini 7, Carnarvon. We are not getting any data on the Pilot, medical data. Would you check the plug for us?

Borman: He hasn't got it plugged in yet. We'll have that fixed in a minute.

Carnarvon Cap Com: Okay. We are also getting no indication of the of the clocks counting here on the ground. Would you check to make sure that the prime reference system is on.

Borman: Roger, it's off.

Carnarvon Cap Com: Roger, what is the reason for that?

Borman: Inadvertent circuit breaker actuation during removing the suit.

Carnarvon Cap Com: All righty. Fine, we are showing clocks counting now.

Borman: I'll need an update please.

Carnarvon Cap Com: Oh, let's see. You should be within about 2 hours 11 minutes 55 seconds Jim, you're pretty good, so they can update you over the States.

Borman: No, I mean, can you give me a time hack so I can set my initial elapsed timer.

Carnarvon Cap Com: Oh, alrighty. 45 hours 38 minutes and at 40 minutes - 40 seconds, I'll give you a hack. That is 45 hours 38 minutes.

Borman: Could you make it at 45 40?

Carnarvon Cap Com: Let's see, that is pretty close to our LOS, how about 39?

Borman: Rog, can do.

Carnarvon Cap Com: TR is lined about 9 minutes different from the Command but there is no problem on that.

Houston Flight: Roger, we are going to update it this pass anyway.

Carnarvon Cap Com: Roger. HACK.

Borman: They will give her another try here. Thank's for the reminder. It went in that time.

Houston Flight: Give us a JF03 also please.

Carnarvon Cap Com: It is reading 200. Standing by for an update.

Carnarvon Cap Com: 3 seconds, 2 1, MARK. 45 hours, 39 minutes.

Borman: Thank you very much Carnarvon.

Carnarvon Cap Com: Roger.

Houston Flight: Set, get John on the TWX please.

Carnarvon Cap Com: Gemini 7, has the pilot gotten the plug - biomed plug in yet?

Borman: Negative.

Carnarvon Cap Com: Roger.

Borman: It takes a little while.

Carnarvon Cap Com: Okay.

Borman: You should be getting a TM now.

Carnarvon Cap Com: Roger, we've got it.

Carnarvon Cap Com: LOS Flight.

This is Gemini Control here at 45 hours 47 minutes. That concludes the Carnarvon pass. During the upcoming State side pass the crew will be given a go for a 46-1 position, that is a 46 revolution flight. A little later this afternoon from the NASA launch facility at the Western Test Range, NASA in cooperation with the French government will launch a Scout Rocket carrying a French payload. This payload was designed and assembled by the French National Center for Space Studies. It is a 135 pound package designed to measure electron density and radio wave propagation characteristics. It will also carry experiment - an electron density probe experiment which was built by the University of Birmingham in England. The vehicle will be launched into a near Polar orbit, hopefully a 76 degree inclination. The launch time is presently scheduled for 12:30 local California time. The Gemini 7 spacecraft will not be in proximity of the launch area at the planned time of launch. They will probably not see the launch. This is Gemini Control Houston.

END OF TAPE

This is Houston, 46 hours 10 minutes into the flight and we are coming up on the Guaymas station. For the record, our music interlude started at Antigua on this revolution and continued through Australia for a total of about 60 minutes. We have had no contact with the spacecraft since Carnarvon. Earlier we discussed the launching of the French satellite out on the West coast this afternoon. That is still counting down. It looks pretty good for a launch several hours from now. They will be trying for a near circular 490 mile high orbit.

We are standing by for contact through Guaymas and we will come to you when we have that. The flight plan on this pass, in addition to that go for 46-1 flight will also include a transponder test. The transponder was turned on at Carnarvon, it is to be left on until they get back around to Carnarvon on the next rev. Also during this upcoming pass, they are to do some D-4/D-7 measurements between Kano and Carnarvon and the flight plan calls for another fuel cell purge while over Carnarvon on the next pass. The music was going out to the via HF transmission and simultaneously they were talking to the ground stations as they passed over the various stations by UHF. This is a form of communications that will be used during the Gemini 7/6 the dual flight. It is planned for the two spacecrafts to talk to each other by HF and use UHF to talk to the ground. We are now seeing data through the Texas station on Gemini 7, still no voice contact. We have voice contact now. Let's cut in.

Houston Cap Com: Gemini 7, Gemini 7. Houston Cap Com. How do you read?

Borman: Loud and clear, go ahead.

Houston Cap Com: Roger. We would like to have you bring your computer up at this time in preparation for this 46-1 load. That would be AC power to IGS and then computer on in prelaunch.

Borman: Roger. Computer is on.

Houston Cap Com: Roger, stand by for a DCS update and you have a go for 46-1 at this time.

Borman: Roger, 46-1 go. We inadvertently had our TRS circuit breakers off while Jim was taking the suit off. Will you check our our TR's for us.

Houston Cap Com: Roger. We have a proper readout here. You should be updated now. Did you get the light Gemini 7.

Borman: Roger.

Houston Cap Com: Are you ready to check out the TR at this time?

Borman: Negative, not now.

Houston Cap Com: Understand. You could not read it at this time now anyway. It is too big. We'll have to wait until a later pass I guess.

Borman: I just wanted to make sure it was working all right to you, that is all I was worried about.

Houston Cap Com: It is looking real good here.

Borman: Fine.

Houston Cap Com: Okay, I'd like to give you a 46-1 update.

Borman: Roger. Can you stand by just a minute.

Houston Cap Com: Roger.

Lovell: Houston, this is 7. Standing by for the 46-1 update.

Houston Cap Com: Okay, Jim. GETRC 71+34+29, retro to 400K 15+01. RETRB 20+36, bank left 50, bank right 60. Do you copy?

Lovell: This is 7, roger, copy for 46-1.

Houston Cap Com: Do you want to read it back?

Lovell: Roger, 46-1, GETRC 71+34+29, RET 400K 15+01, RETRB 20+36, bank left 50, bank right 60.

Houston Cap Com: Roger. And do you have to 46-1 GO--NO-GO information for me.

Lovell: Not yet. We will get that for you as soon as we can.

Houston Cap Com: Roger. Instruction on your D-5 instrument, we are happy with your results and your check. We do not understand why it is doing that but we feel that you made a good check. I would like you to put that instrument aside for the time being and we are getting another one in here to do some analysis on - we are going to try and figure out just what is happening in it. We will not give you any more assignments on it for the time being.

Lovell: Roger. We'll get this functional chart for the 46-1 when we can work it in. We don't want to miss the Cape though this time.

Houston Cap Com: Roger. Just for your information we contacted both Sue and Marlyn this morning and last night. All families are doing fine. All the kids are back in school. Sue said that the boys promised they would try and buckle down on their schoolwork and Marlyn's particular message was that your mother is doing real fine Jim. She has talked to her on the phone.

Lovell: Fine, great. I feel kind of naked without my suit on.

Houston Cap Com: Temporarily embarassed, huh? Understand it is comfortable.

Borman: Elliott, this is 7 here. We are checking now on the Cape for that radar test.

Houston Cap Com: Roger. HF should be available again to you anytime you want to tune it back in.

Borman: Roger. Do you care if we turn the computer off?

Houston Cap Com: Stand by. We want to leave the computer on a few more minutes 7.

Borman: Okay.

Borman: Okay, we passed over the Cape. We had a good track, it was real easy to acquire and very easy to stay on.

Houston Cap Com: Okay, 7. Have a report for you. Your D-4/D-7 data is coming in very good. We have been very pleased with the results on it so far.

Borman: Thank you.

Houston Cap Com: We are standing by for your GO--NO-GO information.

Borman: We are going to get it right now.

Houston Cap Com: Okay.

Borman: It took a little longer to get the suit off then we anticipated.

Houston Cap Com: Roger.

Borman: Would you remind Mr. Kraft that the computers take electrical power and electrical power uses cryogenics and we are not going to be able to borrow any.

Houston Flight: We will let you turn it off in a few minutes.

Borman: Okay.

Houston Flight: Mr. Kraft knows all that good stuff. Stand by, we want to check your computer.

Borman: Good.

Houston Flight: Last look at the cryogenics say that you can stay up there about 20 days.

Lovell: Okay Chris, we are ready.

Borman: I may have to take my suit off though to defend myself up here now.

Houston Flight: No comment.

Houston Cap Com: There should be a clothes pin stored on the left side.

Borman: Roger, that's exactly what I need.

Houston Cap Com: Go ahead 7. Gemini 7, did you call Houston?

Lovell: Roger. Main batteries are okay, all batteries are 23 volts. Do you want individual status readouts.

Houston Cap Com: Roger.

Lovell: 1A, 4 amps, 1B, 4 amps, 1C 4.5 amps, 2A 4.0, 2B 4.2, 2C 5.0. Main bus voltage 27.0.

Houston Cap Com: Roger.

Lovell: RCS A pressure 3000, temperature 80.

Houston Cap Com: Roger.

Lovell: RCS B 2900, temperature 75.

Houston Cap Com: Roger.

Lovell: Left secondary O_2 5400.

Houston Cap Com: Roger 5400.

Lovell: The right one is 5300.

Houston Cap Com: Roger 5300. Gemini you are cleared to turn your computer off at any time now.

Lovell: 7, Roger.

Houston Cap Com: Gemini 7, Houston Cap Com.

Lovell: Go ahead.

Houston Cap Com: We have got a good check on your computer. You are in good shape now.

Lovell: Thank you.

Houston Cap Com: 7, at some time in the future we plan to contact you about possible reinstalling the EEG lead. Are you going to be able to get at that kit which has that special glue in it?

Borman: .....

Houston Cap Com: Say again.

Borman: We were only kidding about that.

Lovell: We can try it.

Houston Cap Com: Okay.

This is Gemini Control here. The spacecraft is out over the mid-Atlantic now, probably out of range of the Bermuda station. Our latest quantity readouts look like this. Throughout the night, or since our last reading yesterday afternoon the crew has used only, actually less than 2 pounds of fuel for attitude control, hardly a measurable quantity, onboard a measurable change. The last reading we gave was 68 percent. In breathing oxygen we show 96.6 percent remaining, fuel cell oxygen 91 percent, fuel cell hydrogen 97.3 percent. I think the officials here are much impressed with the way the crew is conserving all of their consumables. This is Gemini Control at 46 hours 29 minutes into the flight.

END OF TAPE

Houston here, 46 hours, 40 minutes into the flight. Just concluded a conversation by the Canaries. During this pass over Carnarvon, Jim Lovell is to give us a crew status report, a major medical-type report. We have the tape for you. We'll play it now.

FLIGHT 6-1 and updated his computer for 31-1. All that looks OK, as far as we can tell at this time.

CYI Roger, copy.

FLIGHT And hisDelta P light is still out.

CYI That's nice.

FLIGHT And the pilot seems to be comfortable with his suit off.

CYI Roger.

FLIGHT Canary Cap Com, Houston Flight.

CYI Go ahead, Flight.

FLIGHT Would you remind the pilot that he has a medical data pass over Carnarvon - acquisition time 47 08.

CYI Say again the time, Flight.

FLIGHT 47 08.

CYI Roger.

FLIGHT Elapsed time.

CYI Roger.

CYI Gemini 7, Canary Cap Com. Over.

s/c Reading you loud and clear, Jerry.

CYI Roger. There is a status report on the pilot over Carnarvon. I'll give you elapsed time. 47 08 00.

s/c Roger. Crew status over Carnarvon at 47 08.

CYI Roger.

CYI Spacecraft TR lies about 375 milliseconds.

FLIGHT Say again.

CYI Spacecraft TR 90 minutes from the ground lies 375 milliseconds.

FLIGHT We'd like to update his D4, D7 sequence 430, to 47 55 37, vice 47 55 31 is what he presently has.

CYI Roger.

CYI Gemini, Canary.

s/c Go ahead.

CYI Roger, we'd like to change the time on your D4, D7 experiment, the one you have listed at 47 55 31. We'd like you to change that to 47 55 37.

s/c Roger. D4, D7 sequence 430 is now 47 55 37.

CYI That's affirmative.

s/c Canary, we were wondering if you could give us some info on how the transponder worked out over the Cape.

CYI Flight.

FLIGHT We don't have an answer. We'll check.

CYI Roger.

CYI We'll have an answer for you momentarily. You can cut off your quantity read switch and good night.

s/c Roger. And we can turn off the transponder, too.

CYI Roger, standby. Flight.

FLIGHT Turn that off at Carnarvon.

CYI Roger.

CYI Flight says Carnarvon.

s/c Roger.

CYI We're about to lose you pretty soon now. We'll probably give you a report over Carnarvon on that transponder pass over the Cape.

s/c Roger. Let us know about it.

CYI Canary has LOS.

FLIGHT Roger.

While the Kano station was available there was no further business to be conducted, so there was no further conversation by Kano. The spacecraft is now over central Africa, around the equator as a matter of fact, slipping down over Madagascar. This is Gemini Control at 46 hours, 48 minutes into the flight.

END OF TAPE

Gemini Control Houston here, 47 hours 18 minutes into the flight. We have a tape of the Carnarvon pass during which Jim Lovell describes how he is feeling and how it is to ride without a suit. Here is the tape.

Carnarvon Cap Com: Gemini 7, Carnarvon Cap Com.

Borman: Go ahead Carnarvon, Gemini 7.

Carnarvon Cap Com: Roger, I have a fuel cell purge here in addition to the medical data pass.

Borman: Okay, which one do you want first.

Carnarvon Cap Com: The medical data pass first.

Borman: Roger.

Carnarvon Cap Com: Can you possibly get them both at the same time.

Borman: Negative, because Jim Lovell is going to be doing them both.

Carnarvon Surgeon: All righty. We get no indication of oral temp at the present.

Borman: It is in his mouth.

Carnarvon Surgeon: Okay, we'll forget that part of it.

Borman: Roger. Sending you a blood pressure.

Carnarvon Cap Com: I doubt if we will have time to get all of the purge in.

Houston Flight: Okay.

Carnarvon Surgeon: Your cuff is full scale.

Lovell: Roger, letting it bleed off.

Houston Flight: Let them know that their input from the Cape they are fairly certain that they had an error in their plane data.

Carnarvon Surgeon: We have a good blood pressure. Would you give me a mark when you begin your exercise.

Lovell: Will do. Did you get the oral temperature yet?

Carnarvon Surgeon: Negative.

Lovell: Beginning exercise.

Borman: Okay, the oral temp, our oral temperatures on both .. (garbled) are not working and mine didn't work either last time.

Carnarvon Surgeon: Roger.

Carnarvon Cap Com: You can turn your transponder off at this time.

Lovell: It's off.

Carnarvon Cap Com: Roger.

Lovell: Exercise is completed. Here comes the blood pressure.

Carnarvon Cap Com: C-band track at Carnarvon.

Houston Flight: Okay.

Carnarvon Surgeon: Your cuff is full scale.

Lovell: It is bleeding off.

Carnarvon Surgeon: We had a good blood pressure. Do you have any additions to your food and water report.

Lovell: Now yet, not since last time.

Carnarvon Surgeon: Roger. We did get an indication of oral temperature.

Lovell: Very good.

Carnarvon Surgeon: Surgeon out.

Lovell: Thank you.

Carnarvon Cap Com: Flight, we are not going to be able to complete the fuel cell purge.

Houston Flight: Okay.

Carnarvon Cap Com: We can get almost all of it in.

Houston Flight. Okay.

Carnarvon Cap Com: Okay, while you are purging, we have the results of

the transponder test. They were negative but they feel that it is a ground problem. I'm quite sure that your transponder is okay. Apparently there is an error in the pointing data.

Lovell: No, it couldn't have been. I was tracking exactly on the pad and it was very easy to spot and we were right on it.

Carnarvon Cap Com: What we feel is that it was an error in the ground pointing data. What the ground had themselves.

Lovell: I see. Thank you.

Carnarvon Cap Com: Roger, ditto on all times.

Lovell: From up here it looks like they're pretty busy on Pad 19.

CRO CAP COM: Roger, everything's gone real good on it.

Borman: Carnarvon, Gemini 7.

CRO CAP COM: Roger, Gemini 7.

Borman: Roger. Jim's purging here. He's been out of the suit for about a rev now. He's very, very comfortable. I'm able to stay as comfortable as I was. Our suit temperature has dropped and so has our cabin temperature.

CRO CAP COM: Roger.

Borman: Gee, boy, this is the only way to fly.

CRO CAP COM: Ok.

Flight, do you copy? Carnarvon has had LOS.

END OF TAPE

Gemini Control, Houston, here, 47 hours, 46 minutes into the flight. The Guaymas station has contact with the spacecraft and he is taking the data readings at this time. Since approximately Canton Island we have started playing the music again on HF. We don't expect too much conversation, at least in the early part of this pass. There are no major flight plan items shown, so let's cut in now on the music being broadcast up to Gemini 7.

MUSIC

. . . and then he said he could see Houston very clearly, and he called down and he said tell Conrad - Pete Conrad, that would be - to get his kids off his roof - his, Frank Borman's, roof.

MUSIC

This is Gemini Control, Houston. We've had a liftoff of a Polaris missile from the submarine Benjamin Franklin. The liftoff was at 55 minutes - 47 hours 55 minutes into the mission. The submarine Ben Franklin is parked about 30 miles east of the Cape, and Jim Lovell says, "We've got her and she's beautiful!" It's a Polaris A-3-type missile, made by the Lockheed Company, 31 feet long and 54 inches in diameter. It's a two-stage missile. The spacecraft was pointed nose down 35 degrees. Frank Borman says, "It's easy to track - we're right on it." They just called staging. From the Cape we're advised the IP or the flight plan of the missile looks real good. still good, is the report from the Cape. Flight path looks good. It's programed for a 2500 nautical mile flight down the Eastern Test Range. Still good, on time, on the line. We have heard from the crew now that they had it clearly in view as it lifted out of the water. The distance, again, that it was launched about 30 miles east of the Cape; the Ben Franklin was submerged when it was launched. Jim Lovell says they have lost contact; it went into a cloud bank of some sort. Just a rough estimate would be they were tracking, or had it in sight, for fully three minutes. Elliot See has confirmed that tracking is

complete. Frank Borman says the time was right on the mark and the planned launch time was on an elapsed time. 47 hours, 55 minutes, 37 seconds. Cape says it looks like a good flight. They'll need a little bit more time to see if it did exactly what it was supposed to do, but from all the T/M indications, all the impact predicter look angles, it looked like it was doing just exactly right. Frank Borman advises that he was busy using the reticle to keep the spacecraft on good track while Jim Lovell was photographing the missile as it rose from a point about 30 miles east of the Cape. While we're waiting for additional reports we'll go back to the music on HF, which is still being piped up to the crew and undoubtedly they had it turned off during the - during this time. They can turn it up and down as they wish. Let's see if we still have some music.

MUSIC

This is Gemini Control, Houston.

END OF TAPE

This is Gemini Control, Houston. We have the tapes now leading up to the Stateside pass which we are prepared to play for you. The first one was remoted through Canton Island. The capsule communicator voice is that of Donald K. Slayton, who is assisting Elliot See at the time and just joined in for a chat with the crew. So let's have the Canton tape first.

HOUSTON Gemini 7, Houston.

s/c This is Gemini 7, go ahead.

HOUSTON Rog, 7, this is Houston. Are you go for D4?

s/c Roger. Go.

HOUSTON Fuel cell purge complete?

s/c I din't read you.

HOUSTON Is your fuel cell purge complete?

s/c Yes, complete.

HOUSTON Roger. How did you like the music? Are you still getting it?

s/c We turned it off. We got a little busy there and turned it off for a while.

HOUSTON OK. They've got some good Hawaiian stuff coming up to you.

s/c Roger. We'll try it.

HOUSTON Cloud cover at the Cape is .3 to .5 for D4.

s/c Say again, please.

HOUSTON Cape cloud cover .3 to .5.

s/c Where is that?

HOUSTON That's at the Cape, for D4.

s/c It was all clear when we went by there the last time.

HOUSTON Yeah, you know the weather guessers, sport.

s/c Roger. Houston, this is 7. I wouldn't worry about the correction of anything. There is evidently no problem. We wre very, very

comfortable.

HOUSTON Very good, very good. Fred says that's worth a dollar to him. This is Houston again. That concluded the Canton portion. We will be ready in a very few seconds with the Hawaii tape. Meanwhile our Cape sources have advised the Polaris flight was a completely successful mission. Completely successful. Let's hear now the Hawaii conversation.

HOUSTON Gemini 7, Houston.

s/c Gemini 7, Houston. You're fine.

HOUSTON Roger. Turned off your HF music for the Cape pass. That aerial's getting too hot.

s/c Roger. . . . .

HAW Be advised that they turned off the HF music.

s/c Roger. Thank you. And also our pressure fuel cell light . . . .

HOUSTON Gemini 7, Houston. The music is available again.

HAW Gemini 7, Houston advises music is available again.

s/c Ok. Thank you very much.

HAW Roger.

HAW Gemini 7, Hawaii Cap Com.

s/c This is 7, Hawaii Cap.

HAW Ok. How are you doing up there this morning?

s/c Pretty good. . . . . .

HAW Roger. Ok. We show you go here on the ground. Now would you put your quantity read switch to the ECS O_2 position please.

s/c Roger. We're in ECS O_2.

HAW Roger. We got that. Just stay there one. Ok. Would you put your quantity read switch on fuel cell O_2 position, please.

OK. Hold it there. The quantity read to the fuel cell H_2

position. OK. Hold it there.

s/c The fuel cell Delta P light is back on now, Hawaii.

HAW OK. Can you get me the time it came on?

s/c I have that. 7 22.

HAW OK. Thank you.

HAW We're having a very bad T/M,Flight,because of the elevation.

FLIGHT Rog.

HAW OK. Quantity read switch off. Thank you.

s/c It's off.

HAW OK. We'll be standing by if you need anything else.

s/c Roger.

HAW We have LOS.

Now, through the courtesy of our instant replay equipment, the Stateside pass.

s/c Go ahead.

HOUSTON Roger. We have you go on the ground. Everything looks real good. We have nothing for you. We'll be standing by.

FLIGHT D4, D7 still on schedule.

HOUSTON Texas coming remote.

HOUSTON Gemini 7, Houston.

s/c Gemini 7, go ahead.

HOUSTON Roger, we're standing by for your D4. We have nothing special this pass. The D4 is still on schedule.

s/c Roger. D4 on schedule. We're all set to go.

HOUSTON For your information, the possible activity on the 38th rev will not take place. I say, you'll have uninterrupted sleep period tonight.

s/c Roger. Say, Houston, we're right over you.

HOUSTON Hello, there.

s/c Hello, Elliot.

HOUSTON Go ahead.

s/c Tell Conrad to get his kids off my roof.

HOUSTON I can see he's out of town now.

s/c We got some very good pictures. Houston was clear as a bell. We could see the astrodome, the whole works.

HOUSTON You say you got some pictures on this pass?

s/c Right over you.

HOUSTON You were able to get some pictures this pass?

s/c Very good ones, I hope.

HOUSTON Excellent. We weren't sure you'd have enough time there with the further D4 so we didn't tell you about that.

s/c Houston, this is Borman. There has been some clouds move in here just in the time since we've been around.

HOUSTON Roger. We've got one plus 30 to go.

HOUSTON One minute.

s/c Roger.

s/c We've got her and she's beautiful.

HOUSTON Very good.

s/c I hope they know where they're shooting that thing.

HOUSTON Something I forgot to tell you, Frank. Another aerospace first. Sorry about that, chief.

s/c It's easy to track - we're right on it.

HOUSTON Roger.

s/c Staging.

HOUSTON Roger, staging.

HOUSTON Hey, 7, do you have guidance initiate?

s/c Roger, manual control

HOUSTON Hey, 7, did you see a nose fairing separation?

s/c Negative.

HOUSTON 7, did you observe a separation?

s/c Negative. It went through the clouds as we kept on tracking it, it was just a white cloud backdrop.

HOUSTON Roger.

FLIGHT 7, understand you had completed tracking it. Is that correct?

s/c That is affirmative.

FLIGHT Roger.

s/c Time was right on the given time.

HOUSTON Roger.

s/c 47 55 37, how about that?

HOUSTON Roger.

s/c We tried to get - I hope we got some good data.

HOUSTON Roger.

HOUSTON Space 7, Houston. Did you make any meter readings during your tracking?

s/c Negative

HOUSTON Roger.

s/c I kept trying to observe and track it and Jim was photographing it while I was using the reticle.

HOUSTON Roger.

HOUSTON Space 7, you have a TX coming up in about 20 seconds.

s/c Roger.

CAPE Dump it, 7.

HOUSTON Space 7, do you still read Houston?

s/c Read you loud and clear.

HOUSTON Did I hear that you made an S5 pass earlier today? I think it was across Mexico.

s/c Gemini 5, say again.

HOUSTON Did I hear that you made an S5 pass over Mexico earlier this morning?

s/c Roger. We made one S5 pass over southern Mexico earlier this morning. We were going to do another one but we didn't have time prior to this pass.

HOUSTON Roger.

This is Gemini Control, Houston. I want to correct something said earlier. It was Jim Lovell who made the crack about the Conrad kids on his roof, not Frank Borman. Lovell and Conrad live about a block from each other.

This is Gemini Control Houston, out at 48 hours, 12 minutes into the flight.

END OF TAPE

This is Houston, 48 hours 45 minutes into the flight. In a brief conversation over the Tananarive Tracking Station some minutes ago - right now the spacecraft is over Carnarvon. First, let's bring you the conversation from Tananarive.

HOU CAP COM — Gemini 7, Houston Cap Com.

S/C — Go ahead, this is Gemini 7.

HOU — We have an update on the S-8/D-13 time. Can you copy?

S/C — Go ahead with your time, please.

HOU — S-8/D-13 time should be revised to 49 25 53. Closest approach 49 26 48. Do you copy?

S/C — Roger, we have that.

HOU — Roger, and Benjamin Franklin says the pleasure was all theirs. It's always a pleasure helping other Navy men out.

C — Tell ..... he did a wonderful job.

HOU — Roger. Said you reported staging even quicker than they did.

S/C — ..... a pleasure.

HOU — They said when your music is off we're changing reels.

S/C — Roger. .....LOS.

END OF TAPE

Houston here, 48 hours 55 minutes into the mission. We have just passed the Carnarvon Station and here is that conversation.

CRO Gemini 7, Carnarvon

S/C .... Carnarvon go ahead.

CRO Roger. We'd like for you to boost up your ECS O_2 pressure between 500 and 583, somewhere in there on your gage.

S/C Roger, ECS O_2 coming up somewhere between 500 and 583.

CRO Roger.

HOU You can also tell him that - -

S/C I'm reading 500 now, Carnarvon.

CRO Roger. We're showing you a little low on the ground.

S/C Okay. I'll go ahead and boost it above 500.

CRO Roger.

Go ahead, Flight.

HOU You can tell him he's right on the flight plan with the OAMS usage.

CRO Roger. Also, you're right on the flight plan on your OAMS usage, Gemini 7.

S/C Okay, thank you.

HOU What do those radiator temperatures look like?

CRO CD O_3 is regulating about 38. CH O_2 radiator outlet temperature is reading minus 8. Did you copy, Flight?

HOU Affirmative. Is CD O_3 steady?

CRO It is steady at this time.

HOU That's interesting.

U Carnarvon, could you send us another main, please?

CRO Roger. It's on its way, Flight.

HOU Rog.

CRO We're short a good bit of thruster activity, flight.

HOU Rog.

CRO We're showing him in PULSE MODE.

HOU Rog.

CRO Flight, we have approximately 30 seconds to LOS. Do you have anything you want to relay to us?

HOU Negative, I don't have anything.

CRO Rog. Carnarvon has had LOS.

This is Gemini Control Houston, again. Time 49 hours 1 minute into the flight. After an earlier pass you heard a reference by Elliott See to the fact that some activity that had been planned on the 38th rev later today was being postponed. This reference had to do with the possibility of another missile launching. The launching has been postponed due to lighting conditions, there were no mechanical problems involved, it was simply a lighting factor. That is, spacecraft lighting and look angles that have caused us to postpone this launch. This is Gemini Control Houston.

END OF TAPE

Gemini Control Houston here. Forty-nine hours 17 minutes into the mission. Over the Hawaii station just passed, the conversation went like this.

HAW Gemini 7, Gemini 7, Hawaii Cap Com.

They have C-band track.

S/C Gemini 7.

HAW Gemini 7, Hawaii Cap Com.

S/C Roger, go ahead Hawaii, Gemini 7.

HAW Roger, we're showing you GO on the ground and I have a flight plan update for you when you're ready.

S/C Is it a very long one?

HAW Roger.

S/C We're right in the middle of trying to eat. I wonder if they could hold off for a while?

HAW Roger. We'll stand by.

S/C Thank you.

HOU Good over here, Hawaii.

HAW Roger, flight.

HAW Gemini 7, Hawaii. They'll take care of it over the States.

S/C Thank you.

HAW Standing by. I have C-band LOS.

END OF TAPE

See is going to remote to the spacecraft through the California station. On this pass the time is 49 hours 20 minutes into the mission. He has just put in his first call. Let's listen in.

HOU ..... Com.

S/C This is 7. I read you loud and clear.

HOU Roger, you finished eating lunch yet?

S/C We haven't quite - - - (lost trans)

HOU Understand you have not quite finished?

S/C That's right. We haven't quite finished. We're going to do an S-5 issued to us a few minutes ago. We're coming up on it now.

HOU You aren't forgetting your S-8/D-13, are you?

S/C Oh, we won't - we won't forget that one.

HOU Okay

S/C Uh Elliott, we were not able to get the S-5 over Australia. It was still too dark and also cloudy.

HOU Uh, roger.

As soon as you're able here we've got a flight plan update to pass on to you, but S-8/D-13 has top priority here, we don't want to foul you up on that.

S/C Well go ahead and pass the flight plan up it looks like it's going to be too cloudy for trying to take pictures of Mexico anyway.

HOU Okay. Get your attitude on S-8 and whenever you need me to stop talking just say so we'll break into the flight plan update and then we'll catch it after you finish.

S/C Roger. I think you can go ahead and start now.

HOU Roger, you ready to copy?

S/C Roger.

HOU Mode:49 plus 02 plus 56. Rev 31,169.1 degrees east, right ascension 12 50 31. D-4/D-7: 50 56 00. 418 - that was sequence 418. Mode 02. Pitch 90 degrees down. Yaw 0 degrees. Do you copy?

S/C I have copied.

HOU D-4/D-7: 50 56 00. Sequence 421. Mode 02. Pitch 9er 0 degrees down. Yaw 0. D-4/D-7: 50 56 00. 4 - Sequence no. 422. Mode 02. Pitch 9er 0 degrees down. Yaw 0. Do you copy?

S/C I copy, Elliott. We'd better stop now, Houston to get ready for S-8/D-13.

HOU Okay. Give me a call when you're able to copy some more.

TEXAS go Remote. California Local.

TEX Texas remote.

CAL California local.

HOU Gemini 7, Houston.

S/C This is 7. Go.

HOU Roger. The wind is from the north so there is smoke along the south border and your pass will be 40 miles north of the site. The weather is very clear.

S/C Roger.

S/C Houston, this Gemini 7. We got it.

HOU Go ahead.

Roger. Copy you're looking at it now.

S/C A three. The second one is a one. The first one is a three and I can't read the rest of them.

HOU Roger.

Did Jim make any readings?

S/C No, Jim didn't acquire at that time.

HOU Roger, understand, you were the only one that acquired and you called the first one as a three, the next one as a one, and you couldn't make any more readings.

S/C The first one was a three also and I couldn't read any after that.

HOU The first one was a three, the second one a one, and the third one a three.

S/C Negative.

HOU Is that correct?

S/C Say again.

HOU He read a 3 1 3. Is that correct?

S/C It's correct.

HOU Roger.

And were you just not able to make out anything further than that, or were you just not able to see the square well enough?

S/C Well, we couldn't see the squares very well, there's not much contrast down there now.

HOU Roger.

S/C The big markers stick out very well.

HOU Roger.

Okay. Are you all through with that pass then, Gemini 7?

S/C Roger.

HOU Okay. Ready to copy some more?

S/C Roger. . . . . let me get some books out here.

HOU Roger.

S/C We want to get some passes down the aisle at this time, too, to check for damage from the last hurricane.

HOU Roger.

S/C Go ahead.

HOU D-9: 51 13 00. Incidentally, do you know you have a critical dump on this pass over the Cape?

S/C Roger.

HOU Okay.

The time on the D-9 is 51 13 00. Sequence 01. Mode 01. At time 52 20 00. Fuel-cell purge at Hawaii. At time 52 36 00 - Crew Status Report on the Command Pilot at Texas. Do you copy?

S/C 7 Roger.

HOU Okay. At time 52 42 00. Sequence 01. Transponder ON. Time 53 00 00. Sequence 01. Transponder OFF. Time 53 55 00. Crew Status Report on the Pilot at Hawaii. Time 55 10 00. POA update at the CSQ. Do you copy?

S/C I have copied.

HOU Roger. That's the end of the message.

S/C Roger.

HOU Gemini 7. On the update we gave you this morning, you notice that the D-4, the next thing you have, the D-4, it had a note - Cold IR off. Do you understand that? It just means you're to do that without using the cold IR.

S/C Roger, roger. We left the cold IR off.

HOU Roger.

We got a report on your OAMS usage. I think it's essentially been reported correctly to you. You're right on your flight plan profile as far as OAMS usage. You're doing real well.

S/C Okay. I was concerned. We've been using it quite drastically here lately.

HOU Well, we've given you a lot to do today, that's the reason.

I have another question, Gemini 7. Could you give us an estimate for flight planning purposes on the time required for eating?

S/C Roger. It takes at least an hour.

HOU One hour for eating, roger, and about 10 minutes extra for exercising

S/C That's roger, and then we have some other functions that take time, too.

HOU Roger, we've noticed that.

S/C We haven't done 'em yet!

We've got some pictures coming up here of the Islands.

HOU Roger.

Gemini 7, Houston. Flight Surgeon would like to have a brief discussion with you at this time regarding the EEG leads.

S/C Roger.

HOU Gemini 7. This is Surgeon. We've checked with the experimentor and we'd like to give - you answer one question. Frank, did the electrodes come off with your helmets on all the time, would you have it on so that it came off during sleep with your helmet on or after you were taking your helmet off?

HOU Gemini 7 Houston. Would you say that your readings on the S-8/D-13 were made at point of closest approach?

HOU Gemini 7 Houston, did you copy?

TX - CODE TX

HOU Gemini 7, did you copy?

S/C Roger. Do you read me now?

HOU Go ahead.

S/C Copied. Do we have a TX?

HOU Roger. Would you say that your S-8/D-13 readings were made at point of closest approach?

HOU Gemini 7 - Houston, do you read?

S/C Roger. We're reading.

HOU Were your S-8/D-13 readings made at point of closest approach?

S/C Your're cutting out Houston. Cutting in and out. We could not .....

HOU Were your S-8 readings made at point of closest approach?

S/C Roger. They were.

HOU Roger.

LOS at 7

This is Gemini Control again. We've had LOS from the Antigua Station. As the spacecraft moves down across the Atlantic they are to perform a star sighting, their D-4 Experiment where they will train their infrared sensors on a star and make a measurement, a radiometric measurement. Shortly after that, while over Ascension Island, they will turn on the MSC-2 and the MSC-3 Experiments. MSC-2 is a proton-electron spectrometer, looking at electrons, free electrons in space, and protons, at given levels. This will remain on as well as MSC-3 through the

S/C The lead came off, I had my helmet on. It was loose when I had my helmet on. It caught on the back of my neck - the one - the lead between my helmet and the eyes caught on something and pulled very badly and one of 'em came off. --- while I had my helmet on.

HOU Roger, I copied. Okay, that's fine.

We'd like to have Jim try and reapply this if he can. And here's some instructions that you can use for trying it with the kit that you have there for applying the electrocardiograph electrodes.

If he can clean the area with a wet wipe and then dry it. Clean the electrode flange, being careful not to put any tension on the other electrodes. Then slightly underfill the electrode with paste, take one of the stromoseal tapes, cut it to size to that electrode, and then apply the electrode. Then cut a small square of germacel tape and cover the electrode with that square of tape and Jim will have to hold his hand for a little while over that to just heat-seal the tape as we did when applying the electrocardiogram electrodes.

Did you copy all that?

S/C Roger. I don't think this is in my job description, but I'll do it.

HOU We'll have to re-do your job description.

We'll give you a job when you come back, Jim.

S/C .....sleep any sleep, anyway, do you?

HOU Didn't hear that last, Gemini 7.

Gemini 7, if all else fails, try the scissors.

S/C Roger.

HOU Gemini 7, Houston. You have a TX on the way.

S/C Thank you.

South Atlantic anomaly, that point where the magnetic field dips closest to the earth. The protom-electron spectrometer for this experiment is made by the Lockheed Corporation. The equipment cost $200,000 dollars. The MSC-3 Experiment is a tri-axis flux-gate magnetrometer. It measures the directions of particles, the electron particles, encountered in space. This particular piece of equipment is made by the Marshall Laboratory in Torrence, California. Each of the units valued at $10,000 each. This is Gemini Control at 49 hours 39 minutes into the flight.

END OF TAPE

This is Gemini Control, we are 51 hours and 12 minutes into our mission. At this time spacecraft Gemini 7 is passing over the northern tip of South American and has just begun it's 33rd revolution over the earth. We have had very little voice communication with spacecraft Gemini 7 over the past hour. The crew has been busy with onboard experiments. As they passed over Hawaii and then over the states on this last pass they were engaged in the D-4/D-7 experiments. These are celestial radiometry readings of space objects, measuring the radiation intensity The sensing or measuring units are housed in the Gemini adapter section. We had a go on the ground at the Guaymas station and the comment at the systems onboard looked real good from ground data. At Houston we had a comment that there is a solid go from Houston. Lovell acknowledged this said, "o.k. we are performing D-4/D-7." And as the spacecraft moves on now on its 33rd revolution and comes within the tracking range of the Rose Knot tracking ship off the east coast of South America they have another experiment which will be taken up the D-9 experiment. This is a space navigation experiment using a space sextant for taking star to horizon angular measurements, is to be used in determining space navigation procedures. At this time, we will play back the short voice communication that we have picked up over the past hour. This is Gemini Control.

CRO	Gemini 7
SPACECRAFT	Roger Carnarvon
CRO	Systems looks good, flight.
SPACECRAFT	Roger, Carnarvon
CRO	Systems looks good, flight.
SPACECRAFT	Roger, Carnarvon.

CRO	Gemini 7, Carnarvon
SPACECRAFT	This is 7, go ahead, Carnarvon
CRO	Roger, we have your.....
	I would like your OAMS propellant quantity
	readout please.
SPACECRAFT	We read about 62%.
CRO	Roger, copy.....
	That's about all we have for you today.....
	so we'll be standing by.
SPACECRAFT	Roger.
HOUSTON FLIGHT	Seven, Cap Com Houston Flight
CRO	Roger Flight
HOUSTON FLIGHT	Understand you have commanded the C band
	on and your're going to leave it on for
	the range tracker in Hawaii passes and
	your real time here, standby pm on.
CRO	That's affirm flight.
	Did you copy reads 62% on onboard propellant
	quantity?
HOUSTON FLIGHT	Affirmative
CRO	They're looking good here Flight.
HOUSTON FLIGHT	Roger, Carnarvon
CARNARVON	We'll be tentatively pm off. A little
	early but I want to make sure I get the
	command in ...

HOU FLIGHT — O. K. I've still got you -- you got about three minutes more on acquisition time.

CRO — That's affirm

HOU FLIGHT — Good C track out there? FIDO is nodding his head yes.

CRO — Roger, we're getting solid track. Right we've got FET's lagging by 9 minutes and 38 seconds.

HOU FLIGHT — O. K. that's correct.

CRO — Rog.

CRO — Flight Carnarvon

HOU — Go ahead

CRO — He does have his ACQ AID beacon turned off.

HOU — Say Again, Stu.

CRO — He's got his ACQ AID beacon turned off, I assume for the experiment coming up.

HOU — Roger.

CRO — LOS, flight, our command is OFF.

HOU — Again Carnarvon.

CRO — Our command is the standby TM off.

HOU — Roger

CRO — Left the C-band adapter ON.

HOU — Okay.

CRO — Everything looks good, flight. We took - I have some readings here. I'll include them in the first pass to one of our off sources on the general list.

HOU — Okay. Why don't you give 'em to me now.

CRO — Roger. OAMS source helium pressure reached 20 60. Next DC 01.

HOU — Okay.

CRO — DC 02 OAMS source helium temperature 54.8. I also have the fuel-cell O_2 pressure if you like.

HOU — Uh, negative. Not at this time. I've got another call, Stu.

CRO — Rog.

Flight Control, we have conference?

HOU — Affirmative. Go ahead.

HAWAII — Houston, AFT Hawaii Cap com.

HOU — Go ahead, Hawaii

HAW — Roger. What are my mission instructions?

HOU — It's down the tube. I would suggest that it should be there to see if it's printing out in mine.

No. It's in the tube.

We've got a C-band track for you and that's it. Leave it on for White Sands. We'll TX at our command off.

HAW — Okay. And I want to confirm that his ACQ AID circuit breaker is full.

HOU — Okay. Stand by a minute.

This is Carnarvon

HOU Go ahead, Carnarvon.

CRO Roger, we didn't have any ACQ AID beacon on at this station for our last pass.

HOU Yeah, Okay. Hawaii, we don't want to confirm anything on that.

CRO What about telemetry?

HOU Leave it on please.

HAW AFD, this Hawaii.

HOU Just to check our speed of line on teletype have you got anything printing out in your console right now?

HAW I got it right now.

HOU Okay, I'm on the second line.

HAW All printing.

HOU You beat me.

HAW I have C-band track.

HOU Roger, Hawaii.

HAW Getting TM solid.

HOU Roger.

HAW [illegible] by we have you go.

S/C Gemini 7 Hawaii. Hear you loud and clear.

HAW Roger, Gemini 7. Standing by.

AFD HAS LEFT

HAW AFD, this Hawaii Cap Com.

HOU How's it going?

HAW Looks good right here on the ground.

We're showing the going off.

HOU Okay. Going off.

HAW Have C-band LOS and TM LOS.

HOU Roger, Hawii

HOU This CAP COM AFD

This is CAP COM AFD

TEX Texas, Go ahead.

HOU Texas, we've decided that we'd better not interrupt him on the D-4/D-7 so disregard the flight plan update.

TEX Roger, we're going to remote - remote again.

Thank you.

HOU Sorry about that. Sorry. We tried to set it up for you but it's pretty tight in there with the sequences and he'd have to drop what he's doing and pick up something and write it down and come back plus it really isn't valid for about another 2 hours before it's really time-critical.

TEX Roger, understand.

HOU Sorry.

GYM Guaymas has solid TM and he's go on the ground.

HOU Roger, Guaymas.

GYM Looks real good, Bud.

TEXAS GO REMOTE

TEXAS GO REMOTE

TEX TEXAS remote.

HOU Gemini 7, Gemini 7, Houston Cap Com. We don't have anything for you here. You're a solid GO.

S/C This is Gemini 7 performing a D-4/D-7.

HOU Roger, Houston.

That was voice communication between the ground tracking stations and Gemini 7 spacecraft accumulated over the past hour. At this time spacecraft Gemini 7 is on its 33rd revolution passing now over the South Atlantic. We are 51 hours and 20 minutes into our mission. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are 52 hours and 20 minutes into the mission of spacecraft Gemini 7. At the present time spacecraft Gemini 7 is passing over the Pacific Ocean and is approaching the Hawaiian Tracking Station. We have had no voice contact with spacecraft Gemini 7 for over 1 hour and the crew, during this interim, has been busy with experiments - onboard experiments. We expect, as the spacecraft reaches Hawaii, that there will be voice communication and the crew will be advised of a fuel-cell purge and the flight plan will be updated at that time. We are now on the 33rd revolution and mission time now has accumulated to 52 hours and 20 minutes. This is Gemini Control.

END OF TAPE.

This is Gemini Control. We are now 52 hours and 58 minutes into our mission. Our spacecraft Gemini 7 has just started a few minutes ago it's 34th revolution over the earth and at the present time is moving over the South Atlantic. During the past hour we have had some limited voice communication with spacecraft Gemini 7 through our Hawaiian tracking station and then again over the States and over the Rose Knot Tracking Ship. And at this time we will play back those tapes for you.

HAW Gemini 7, Hawaii Cap Com.

HAW Gemini 7, Hawaii Cap Com.

S/C Hawaii, Gemini 7, go ahead.

HAW Roger. We have you go on the ground. Standing by for your fuel-cell purge.

S/C Stand by.

Roger and out.

HAW Gemini 7 Hawaii Cap Com. Would you turn your quantity read switch off, please.

S/C Roger, it's off now.

HAW Roger.

HOU Flight, Houston.

HAW Roger, this Hawaii.

HOU We'd like an LOS main, please.

HAW Roger. Command Pilot, I have a flight plan update if you're ready to copy.

S/C Go ahead.

HAW Roger. At 53:36:00 flight plan report CSQ. At 56:00:00 purge fuel-cell RKV. We have a crew status report due over Texas Rev 33 on the Command Pilot.

S/C Roger. That's at 92:30.

HAW Affirm. Standing by.

S/C Thank you, Hawaii.

Hawaii, purge complete.

HAW Roger, understand.

HAW We have a TM LOS at Hawaii.

HOU Roger, Hawaii.

HOU This is Cap Com Houston Flight.

HAW Flight - go ahead.

HOU Standing by for your pass. I assume you're silent here.

HAW Roger. We have acquisition at this time and all systems are go on the ground.

HOU Roger.

FLIGHT Texas go remote.

TEXAS Texas remote.

HOUSTON Gemini 7, Gemini 7, Houston Cap Com. We have a good oral temp, give us a blood pressure and stand by for surgeon.

HOUSTON Gemini 7 Houston Surgeon. Your cuff is full-scale. Gemini 7 we have a good blood pressure standing by for exercise on your mark.

S/C ..... blood pressure.

HOU Gemini 7 your cuff is full-scale.

Gemini 7 Houston Surgeon. We have a good blood pressure. Standing by for your food, water, and sleep report.

S/C Roger, Houston. Water report on the Command pilot - 211 ounces to date. One more meal. It's Day 3 Meal C, and one, uh, blue bag, Friend. The pilot - 166 ounces of water to date. The

same meal D 3. D C M C. Neither of us have had any more sleep than we previously reported.

HOU Roger, Gemini 7, we copied your report. Surgeon out.

HOU Gemini 7 Houston Cap Com. I've got some information on Lunik 8 if you'd like it.

S/C Roger, what's Lunik 8?

HOU Lunik 8 is the Russian soft-landing on the moon which was launched on Friday. The signal ceased at 4:51 p.m. e.s.t. and Sir Bernard Lovell, Observatory Director, said the rocket was undoubtedly on the lunar surface, but whether it made a soft landing or smashed itself we do not know. The comment from Radio Moscow is - no comment.

S/C Thank you.

HOU We'd like you to elaborate on your flight plan smudge-pot report and give us the scores of the vision test, your approximate film usage and give us an account whether M-7 has been going okay.

S/C Roger, Gene, you want that stuff now?

HOU No, you can give it to us with the flight plan report, Jim, and that will be a UHF6 pass.

S/C Roger.

RKV AFD, RKV Cap Com voice check.

HOU Go ahead, RKV.

RKV Roger. I didn't get a mission instruction. Got anything going at this time?

RKV AFD, RKV Cap Com.

HOU RKV, AFD.

RKV Roger. Do you have any instructions? I'm about 3 minutes 20 seconds from acquisition.

HOU Right. Your pass. We want some ground readouts on JC 02 3. AOS mid-pass and LOS.

RKV Right. Three readings.

HOU Right. Three readings.

RKV Ground readouts on Jerry Charlie 02.

HOU And 3.

RKV What's it now?

HOU Stand by.

HOU JV AFD

RKV (Garbled line)you want ..... JF or .....

HOU Yeah. J - Juliette Fox 02 and 3.

RKV 02 and 03 I got ya.

HOU Transponder.

RKV Roger, roger.

RKV AFD Cap Com this .....

HOU Roger, RKV

RKV Gemini 7, RKV Cap Com. We have nothing for you. We're standing by. All systems are go.

S/C Gemini 7, roger.

That was taped voice communication between the spacecraft Gemini 7 and the tracking stations at Hawaii, Texas, and the Rose Knot Tracking Ship. At this time our spacecraft is still passing over the South Atlantic on its 34th revolution around the earth. We will be expecting to get another voice communication with the spacecraft as it comes over the Coastal Sentry Tracking Ship in the Pacific on this revolution and we are hoping that at that time we can bring you some live communication. This is Gemini Control. We are now 53 hours and 4 minutes into the mission of spacecraft Gemini 7. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 53 hours and 36 minutes into our mission with spacecraft Gemini 7. At this time spacecraft Gemini 7 is on its 34th revolution over the earth and is coming up over the Pacific Ocean and very shortly will be passing within voice range of the Coastal Sentry, our tracking ship located in the Pacific and at that time we will bring you the live conversation between spacecraft Gemini 7 and the Coastal Sentry. On our flight plan coming up during this pass we will have a flight plan report from the crew. As the craft moves over Hawaii we have a crew status report from the pilot. This is a medical pass. This will be followed as the hours go by, by an exercise period where the pilots engage in isometric exercises and using the bungee cord exerciser. And that will be followed by a housekeeping period, getting the gear stowed away that they have been using during this busy day of flight. They do this each evening or each day evening in Houston, of course, they do this just before a sleep period which will be coming up at about 9:30 p.m. central standard time. At this time we give you the live conversation between Coastal Sentry tracking ship and spacecraft Gemini 7.

CAPCOM Just want to pass on to you that the Luna 8 did not make a soft landing.

S/C Roger.

CAPCOM We are standing by for your flight plan report.

S/C . . . the Hasselblad film we had used 23 frames . . garbled . . magazine A . We . . garbled . . are on the third one now. We have used 2 magazines of the 16-mm movie. On the D-9 experiment we did not use the green filter we found it was much better with it off.

CAPCOM Roger.

S/C On S-8/D-13 Lovell missed 8 and Borman missed 7 .

CAPCOM You say Lovell missed 8 and Borman missed 7.

S/C Roger

CAPCOM Got it.

S/C It was also requested that you cancel the cabin temperature survey.

CAPCOM Say again.

S/C Roger, we would like to have you schedule a cabin temperature survey.

CAPCOM Roger.

S/C CSQ this is 7.

CAPCOM Go ahead.

S/C I would like you to confirm if you want me to leave the cryo heaters on automatic procedure while we are sleeping.

CAPCOM Standby. Flight CSQ do you copy?

Flight Roger that is our feeling now. We will advise them just prior to the beginning of their sleep period. That is our feeling at this time however.

CSQ Roger. Gemini 7 CSQ that is affirmative at this time. You will be advised further over the states.

S/c Roger. How is sea duty?

CSQ Say again

S/C How is the sea duty?

CSQ It's pretty rough down here.

Flight Chuck you could advise them that we would like a couple of read-outs on cabin humidity

Flight Prior to starting their sleep period if they already have some .

CSQ Roger 7 standby. Flight what was that again?

Flight Roger, if they have taken any recent cabin humidity readings I would like to know it and if not we'd like to get one prior to the sleep period.

CSQ Roger. 7 CSQ have you taken any cabin humidity reading lately?

S/C Not recently the latest readings were around 58 for the dew point.

CSQ Roger, Houston will probably want one before you start your sleep period.

S/C Roger we will make a temperature survey before the sleep period.

Flight Chuck you can ask them if the HF music is coming through?

CSQ 7, CSQ have you been copying the HF music?

S/C We have been having it off and on. When we are busy we usually turn it off. But we have been picking it up otherwise.

CSQ Roger. Flight CSQ we have noticed here that when he keys his UHF transmitter we get fluctations on . . a definite drop on the control buss volts and squib 1 and 2. Do you want to try the UHF number 2 to see if we have the same effect?

Flight That's normal conditions there Chuck.

CSQ Roger, flight.

CSQ Gemini 7 CSQ you report on your hassel plan 43 frames, I did not copy that next item. Would you repeat it?

S/C Roger. That was from magazine A, magazine A.

CSQ Roger I thought I copied SO 217 but I wasn't sure.

S/C Roger thats the film, thats the film.

CSQ Flight CSQ

Flight Go ahead

CSQ The systems on these voltages, I'd like you to confirm those systems here . . .

Flight Hey Chuck break, break. We'd like to have some information whether the M-7 experiment is going all right

CSQ Roger. M-7? Mike 7?

Flight Correct.

CSQ 7 CSQ Can you tell us how your Mike 7, experiment 7 is going?

S/C This is 7. We have been off of all calcium, we are recording everything, everything seems to be okay.

Flight Roger.

CSQ Did you copy flight.

Flight Affirmative.

S/C We are eating some of our meals out of sequence . . . garbled.

CSQ Gemini 7 CSQ we are at LOS I did not copy your last transmission.

That was live voice communication between spacecraft Gemini 7 and the Coastal Sentry tracking station in the Pacific Ocean. We have had loss of signal at the Coastal Sentry. Spacecraft Gemini 7 on its 34th revolution over the earth is proceeding now over the Pacific Ocean. This is Gemini Control at 53 hours and 44 minutes into the mission of Spacecraft Gemini 7.

END OF TAPE

This is Gemini Control. We are now 54 hours and 20 minutes into our mission of spacecraft Gemini 7. At this time, our spacecraft is passing over South America. It is beginning its thirty-fifth revolution around the earth. We have had a voice communication with spacecraft Gemini 7 and pilot Jim Lovell, as we passed over the Hawaiian tracking station, and at this time we will play back the tape of voice communication between spacecraft Gemini 7 and the Hawaiian tracking station.

S/C Hawaii, this is Gemini 7.

HAWAII We have a valid temperature; we're standing by for a blood pressure.

S/C Roger. He's sending it now. This is full scale.

HAWAII We have a good blood pressure. Standing by for your exercise on your mark.

S/C Roger. Stand by. Mark.

LIGHT Hawaii Cap Com. Houston Flight. OK. We've got a slight problem here, and what I really mean is we didn't get as complete a report of the flight plan over CSQ as we would like. I don't think we want to go into any great detail, so I would like you to ask him very simply if he has completed all of the scheduled flight plan items in the last 24 hours. In other words, has he completed all the items that have been scheduled in the flight plan during the last 24 hours.

HAWAII Roger. Have a good blood pressure. Standing by for your food and water and sleep report.

S/C Roger. There's been no change since we gave the food, water and sleep over Texas except for the fact that we're now eating the

evening meal. Do you want the results of that also?

HAWAII Roger. Which meal is that?

S/C OK. That's evening meal that we're eating. Meal A-15, Meal B.

HAWAII Meal B. Roger. Surge out.

S/C OK. We've got the water here, too, up to date if you want that.

HAWAII Please.

S/C Command pilot water up to date is 2.37 ounces.

FLIGHT How is your tape dump going, Hawaii?

HAWAII It's still going on right now.

FLIGHT Roger.

S/C And pilot is 1.78 ounces.

HAWAII Roger, Gemini 7. Surgeon now. 7, like to give the complete -- just a short report on your flight plan. Just want to know if you have completed all scheduled flight plan items for the last 24 hours.

S/C Roger. We gave a flight plan update to CSQ. We have completed them all except one pass for best five over Mexico, and there were clouds. D4-D7 over Mexico -- the IR returns from the water and the land was degraded because of cloud cover, but we completed it.

HAWAII Roger.

S/C Other than that, we're all up to date.

FLIGHT OK. You can tell them we're happy with that report.

HAWAII Roger. Flight's real happy with the report.

S/C Roger. Our tape dump is completed, Hawaii.

FLIGHT OK. Thank you. Good pass, Bill.

HAWAII Phil, we're standing by for you.

FLIGHT Roger. Thank you, How does everything look up there, Bill?

HAWAII It's still looking good.

FLIGHT OK. Did you notice any large variations in squib or control bus power when he was keying his transmitter then?

HAWAII He did just when he keyed the normal amount.

FLIGHT OK. That seems to be our feeling. We have taken a look at the data. If you remember, the CSQ flagged it for us. And we've gone over the data for the past several days and compared it to the GT-5 data, and it's pretty closely following the same curve -- about the same excursions at about the same slope.

This is Gemini Control. That was live voice communication -- rather taped voice communication between Spacecraft Gemini 7 and the Hawaiian tracking station. We have here a report that we got from pilot Jim Lovell on the food and water and sleep for both the command pilot and the pilot to date. These are accumulated totals. The command pilot has had a food intake of 4, 867 calories. The pilot has consumed food with a caloric count totaling 4,747 calories. For water, the command pilot water intake total to date has been 14.2 ounces -- 14.2. The pilot 10.7 ounces -- 10.7. Both the command pilot and the pilot have slept twelve hours each. At this time, Spacecraft Gemini 7 is passing over South America on its thirty-fifth revolution. We are 54 hours and 25 minutes into the flight mission. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are 54 hours and 38 minutes into our mission. At the present time Spacecraft Gemini 7 is passing over the South Atlantic on its 35th revolution over the earth. A few minutes ago as the spacecraft passed over the Rose Knott Tracking Ship which is located off the east coast of South America we had a very short voice communication with the spacecraft and at this time we will play back that taped communication.

RKV Flight RKV CAPCOM

Flight Go ahead RKV.

RKV All systems are go. We are prepared for the TX.

Flight Roger.

RKV Gemini 7 RKV CAPCOM we have nothing for you this time. We are standing by. All systems are go.

Flight On these transmissions you should advise. You need not acknowledge.

RKV Okay.

Flight You can pick it up next time.

RKV Roger.

S/C RKV RKV, Gemini 7.

RKV I read you loud and clear Gemini 7.

S/C Garbled

RKV Roger.

RKV Did you get that flight?

Flight Roger RKV

RKV RKV

Flight Say again RKV

RKV All systems look good.

Flight Okay.

RKV You have got Kelly down here on 3 bearing again.

Flight Whats the parameter?

RKV . . . garbled . . . air outlet temp primary.

Flight Can you break down the data and give us a quick indication as to what the frequency actually existing in the main is.

RKV We just did it. It was 118 and . . from 35.5 to 40.7 at a frequency of 22 seconds per cycle.

Flight Okay 22 second per cycle. Okay, got you.

R KV Okay.

Flight ..... primary cooling loop .....

RKV Roger

Flight It doesn't particularly bother me, it seems to me that we have got a sticky modulating valve out there that going from full open to full closed. Actually both extremes of the temperature span there, which I believe, what is it 36 to 42 isn't it.

RKV Roger. Good thing we had it on that last night. I would like to pursue it further before I reported it.

Flight Yea Bill it doesn't particularly bother me because I saw that the first day of the mission and I believe test data from previous missions again indicated that this occasionally did occur. I watched it on trend blots back here. Gee, the first night and also last night Th-- wasn't particularly concerned about it and neither were our econ guys but I think Blue got all up.

RKV Okay I'll put it . . . down.

Flight Okay, thank you.

That was taped voice communication between spacecraft Gemini 7 and the Rose Knott tracking ship. Our spacecraft is now in its 35th revolution and is approaching the southern most tip of Africa. The speed of the spacecraft at this time is 25,289 ft per second. This is Gemini Control at 54 hours and 42 minutes into the mission of spacecraft 7.

END OF TAPE

This is Gemini Control. We are 55 hours and 26 minutes into the flight of spacecraft Gemini 7, which at the present time is coming up over the Pacific toward the Hawaiian Tracking Station. A few minutes ago we had voice communication between the Coastal Sentry Tracking Ship and the spacecraft and at this time we will play back the taped voice communication.

CSQ Gemini 7, CSQ Cap Com.

S/C Go ahead CSQ, this Gemini 7.

CSQ Roger. You're on the UHF no. 6 test at Hawaii on this rev.

S/C Roger, understand.

CSQ Have you taken a humidity measurement on the last rev or so?

S/C No but we will by the time we get there unless you want it now.

CSQ Say again last.

S/C I say we have not yet but we will shortly.

CSQ Roger. I have a PLA update when you're ready to copy.

S/C Go ahead, CSQ, we're ready.

CSQ Roger. Area 37-3: 58 07 06 14 plus 53. Area 38-3: 59 41 58 14 plus 20. Area 39-Delta: 60 32 59 22 plus 00. Area 40-Delta: 62 08 05 20 plus 53. Do you copy?

S/C Roger. We copied them all loud and clear.

CSQ Okay. A couple more. 41-Delta: 63 46 15 18 plus 58. Area 44-2: 65 32 31 17 plus 30. Area 43-2: 66 58 45 16 plus 08. Area 44-1: 68 23 04 17 plus 18. Do you copy?

S/C Roger. Got 'em all.

CSQ We have nothing else for you at this time. Everything looks good here.

S/C Roger, thank you very much, CSQ.

CSQ Roger, standing by.

S/C One thing we've done - we were getting a lot of heat in through the window so we took a food container bag and put 'em up . . . . . our food container bag, trying to cut the heat down that keeps coming in through the window.

CSQ Roger, copy.

S/C We also had another catastrophe. While I was reaching back to get a food bag I banged my head on a - the overhead and tore off all my EEG leads and we're in the process of pasting those back on now.

CSQ Ok.

This is Gemini Control. We are 55 hours and 30 minutes into our mission. The spacecraft is now within voice range of Hawaii and we will bring you that live communication now.

HAW Put your gloves on.

S/C We haven't had gloves or headgear on since insertion.

HAW Okay. Just keep 'em off while you sleep.

S/C Rog.

HAW Okay. I'd like to put you into - the spacecraft into a sleeping configuration. I'd like you to do it as I say it so we can monitor it here on the ground.

S/C Ok.

HAW Ok. Will you put your RCS heaters on now.

S/C They've been on all day.

HAW Ok. Your fuel-cell heat - correction - your fuel-cell H_2 auto heaters to AUTO position.

S/C Roger.

S/C Auto

HAW Ok. Your fuel-cell O_2 heater switch to the AUTO position.

S/C They're on AUTO.

HAW Okay. I'd like you to take your ECS O_2 heater switch, go to the ON position and raise it to 580 psi.

S/C Ok. How about putting it in the AUTO position?

HOU That's the preferred procedure there, Ed.

HAW Ok. Let's go to AUTO.

S/C It's in AUTO.

HAW Roger.

HOU Ok. And we want to let him raise it to 580 on his reading. Cockpit reading.

HAW Got that.

HOU Ok. And we'd like to know if Jim is going to sleep in his underwear or the orbital flight suit.

HAW Okay. We'd like to know whether the pilot will be sleeping in his underwear or his orbital flight suit.

S/C Sleeping in his underwear. We're a little warm. We have been since we have been up here.

HAW Okay.

S/C For your information I've got my suit completely unzipped and I'm trying to be as cool as I can that way.

HAW Roger, I got that.

S/C Hawaii, this Gemini 7. We just took in a complete survey of the temperatures around the cabin. Venting ambient about 78 with a dew-point of 57.

HAW Roger.

HAW Flight, Hawaii

HOU Go Hawaii.

HAW Ok. When we get to 580 you want him to turn the ECS O_2 heater switch back to OFF. Is that affirm?

HOU Yeah. That's 580 in his reading, that's 700 in yours.

HAW I got that.

HOU What's he reading now on the TM end?

HAW 652 psi

HOU Roger.

S/C Hawaii, Gemini 7. You have any other instructions?

HAW Okay. When that ECS O_2 reaches 580 we'd like you to go back to the OFF position on the ECS O_2 heater switch.

S/C Okay. I'd just as soon leave the others off too unless you really want them in AUTO.

HAW I think they want them in AUTO.

HOU That's really his preference, and we'll give him some values. We'd like to pump them up then for the beginning of the sleep period.

HAW Roger. Got the values?

HOU Stand by.

HAW Roger. If you'll wait on a second, I'll give you the values they want them to be left at, and then you can set them up the way you'd like.

HOU Thank you. We've got to convert these, Ed. You've got about three minutes left, so we've got plenty of time to get them to you.

HAW Yes. I've got plenty. Flight, Hawaii. We've completed the tape dump.

HOU OK. Very good. OK. We want them to go to 500 psi -- his reading on RSS each, too, Ed.

HAW OK. What about O_2?

HOU I'll give it to you. Give it to them now.

HAW OK. We'd like you to go to your fuel cell H_2 to 500 psi.

S/C H_2 to 500. Roger. How about the O_2 ?

HAW They're working on that one.

S/C OK, Ed. Tell them that I'll turn it off when I get there, and then if they want me to turn it back on, wake us up. I'll sleep better if I know it's on Automatic.

HAW Very good. Copy all that, Flight?

HOU Affirmative.

HAW OK. We have LOSB CSO_2. When we went to the heater switch, the AUTO position jumped about 2 amps.

This is Gemini Control, 55 hours, 37 minutes into our flight mission. We have just completed our voice communication. Hawaii tracking station has lost the signal with the Spacecraft Gemini 7. The command pilot, Frank Borman, was the voice talking to the Hawaiian tracking station. At this time, our spacecraft is on its thirty-fifth revolution around the earth. It is on the tag end of that revolution, and very shortly will begin its thirty-sixth revolution. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are now 56 hours 20 minutes into the mission of spacecraft Gemini 7. At this time our spacecraft is passing over the southern tip of Africa on its 36th revolution around the earth. Our flight director, Gene Kranz, had a communication with the spacecraft communicator aboard the Coastal Sentry Quebec a few minutes ago and at that time Chuck Lewis, who is the spacecraft communicator, described the weather at the site of the tracking ship. The weather there is: Winds of 25 to 30 miles per hour with 10 to 15 foot swells. And our spacecraft also just a short time ago passing over the Rose Knott tracking ship had voice communication with the ground;and at this time,we will play back that voice tape.

RKV Rog

S/C Garbled

RKV RKV We have transmitted TX and all systems are go.

RKV CAPCOM

S/C garbled

RKV Roger, we are standing by for your purge. All of your systems are go.

S/C Garbled.

RKV Roger, we would like for you to . . . fuel cell O_2, 750, fuel cell H_2, 500. . Propellant for fuel cell O_2 are 170, the minimum for fuel cell H_2 . . .. Do you copy?

S/C Garbled 750 to 170. . . garbled. . . hydrogen transfer.

RKV Roger. The hydrogen . . . is 500 and the minimum is 330.

S/ Roger. 500 and 330, how about EOS O_2?

RKV Our EOS O_2, 580 to 230 - 233. 580 233.

S/C Roger will you all read that . . . garbled

RKV We got your information for you on tomorrow's exercise. The current mission plan calls for a small peri grade maneuver of about 10 to 12 feet per second. Will be done at apogee . . . garbled . . .

Flight Okay we have it. Its 172.1 by 119.9.

RKV Roger. 172.1 by 119.9

S/C Garbled

RKV 119.9

S/C garbled

RKV Roger

Flight You can read them the rest of the TWX is you want Bill.

RKV Okay. G.e.t. In approximately 5 days the decision to launch Gemini 6 on the 8th or 9th day will have to be made. If the decision is to launch Gemini on the 8th day the circularization maneuver will be made at that time, Approximate g.e.t. equal 5 days. This will give us two launch windows on the 8th day and one window on the 9th and 10th day. If the decision to launch Gemini 6 on the 9th day the circularization maneuver will be delayed to approximately 7 and one half elapsed days. This will allow the launch windows for the preflight nominal flight plan. You got that.

S/C Thank you, thank you very much.

RKV Okay.

RKV We got your information for you on tomorrow's exercise. The current mission plan calls for a small peri grade maneuver of about 10 to 12 feet per second. Will be done at apogee . . . garbled . . .

Flight Okay we have it. Its 172.1 by 119.9.

RKV Roger. 172.1 by 119.9

S/C Garbled

RKV 119.9

S/C garbled

RKV Roger

Flight You can read them the rest of the TWX is you want Bill.

RKV Okay. G.e.t. In approximately 5 days the decision to launch Gemini 6 on the 8th or 9th day will have to be made. If the decision is to launch Gemini on the 8th day the circularization maneuver will be made at that time. Approximate g.e.t. equal 5 days. This will give us two launch windows on the 8th day and one window on the 9th and 10th day. If the decision to launch Gemini 6 on the 9th day the circularization maneuver will be delayed to approximately 7 and one half elapsed days. This will allow the launch windows for the preflight nominal flight plan. You got that.

S/C Thank you, thank you very much.

RKV Okay.

S/C What's going on in the world?

RKV Not much. It's dark down here.

S/C Dark up here too. We have got . . . garbled . . .

RKV Sounds like you are getting ready for Christmas. Garbled...

That was taped voice communication between the spacecraft Gemini 7 and the Rose Knott tracking ship. Our spacecraft voice at that pass was command pilot, Frank Borman. We are now 56 hours and 26 minutes into the mission. The spacecraft is on its 35th revolution. Is now leaving the east coast of Africa and our crew is in a sleep period. It's the 36th revolution, correction. The crew is settling down for a 10 hour sleep period. This is Gemini Control. 56 hours and 26 minutes into the mission.

END OF TAPE

This is Gemini Control at 57 hours and 20 minutes into our mission of Spacecraft Gemini 7. At the present time, the spacecraft is on its thirty-sixth revolution. It is just approximately ending this thirty-sixth revolution, and is passing over the Pacific Ocean on its way toward the west coast of South America. Here in Mission Control, we are in the midst of a shift change. The Blue Team of Flight Controllers will take over in approximately ten minutes for the long night hours and will run from 11:00 to 7:00 a.m. Aboard our spacecraft, the flight crew according to the ground data that we got at the Hawaiian tracking station about twenty minutes ago -- this data indicates the crew is asleep. We have a report now from Cape Kennedy on the status of the launch pad. The word is that final systems tests of the Gemini 6 spacecraft are now better than 80% complete. This word comes from the launch crews at Complex 19. If these tests are completed before noon tomorrow, it will be possible to move the simulated flight test of Gemini 6 up one full day. Spacecraft launch vehicle guidance tests will begin at 1:00 a.m. EST Tuesday if all goes well. Astronauts Gus Grissom and John Young, who are the backup crew for Gemini 6, will be aboard the spacecraft for an abbreviated ascent mode test. This is expected to last approximately one hour. The Gemini 6 launch vehicle systems tests are also running smoothly in preparation for the simulated flight according to U.S. Air Force officials. These tests are about 20 hours ahead of schedule. If all tests continue satisfactorily, it may be possible to launch Gemini-Titan 6 on Sunday rather than Monday as planned. The earliest launch time on Sunday would be 10:10 a.m. EST. This is all predicated upon completing all these tests successfully.

At this time, we are now 57 hours, 22 minutes into the mission, ending revolution thirty-six. The spacecraft crew is asleep, and the Blue Team of Flight Controllers are taking over from the White Team here in Mission Control. In about thirty-five or forty minutes, our Flight Director, Gene Kranz; our Spacecraft Communicator, Eugene Cernan; Flight Surgeon, Duane Catherson; and one other of our flight controller team will be over at the Press Center here in Houston for the nightly press conference. This is Gemini Control.

END OF TAPE

This is Gemini Control, 59 hours 20 minutes after liftoff. Gemini 7 is presently over the voice remoting station in Ascension Island in the South Atlantic. However, it is doubtful that there will be any conversations since both crewmen are asleep. We have just begun the thirty-eighth revolution. The present measurements of the orbit according to the Flight Dynamics Officer's orbital digitals, as they're called on the display system here in Mission Control, show perigee at 119.9 nautical miles; apogee at 171.9 nautical miles. The Blue Team of flight controllers have settled down for the night watch here in Mission Control. We're expecting another quiet night as both crewmen will sleep to about -- until about 8:00 CST. At 59 hours and 20 minutes after liftoff, this is Gemini Control.

END OF TAPE

This is Gemini Control, 60 hours and 20 minutes after liftoff. Gemini 7 at the present time is over the Canton Island voice remoting station. However, as in the previous pass, since they have gone to sleep, there will be no voice communications. The next station which will acquire the spacecraft will be the tracking ship Rose Knot at the beginning of the fortieth revolution. At 60 hours and 20 minutes, this is Gemini Control.

END OF TAPE

This is Gemini Control, 61 hours and 20 minutes after lift-off. Gemini 7 at the present time is over northern portion of India in the 39th revolution. At the beginning of the 39th revolution when the spacecraft passed over the tracking ship,Rose Knot, where spacecraft communicator, Bill Garvin, reported that all systems were go on the ground. There was also a telemetry dump during this pass over the Rose Knot. Bill Garvin also reported it appeared the command pilot was awake at the time. That he was cycling the switches aboard the spacecraft to make checks of his onboard consumable read outs. However, there were no voice communications during this pass. Flight director, John Hodges' wife,Audrey, sent a very delicious nut cake which has been distributed among the flight controllers here on the blue team. At 61 hours and 21 minutes after lift-off this is Gemini Control.

END OF TAPE

This is Gemini Control. 62 hours and 20 minutes after lift-off. Gemini 7 is nearing the end, or has actually finished the 39th revolution and has begun the 40th revolution. They will be acquired by the tracking ship, Rose Knot, off the coast of South America within 5 minutes. This is a fairly low elevation pass. Only 1.8 degrees for a total time of 4 minutes and 1 second. Earlier in the 39th revolution, midway through that revolution, the spacecraft passed over the tracking ship, the Coastal Sentry, and of course, all systems as usual were looking good on the ground. Spacecraft communicator aboard the Coastal Sentry, Charles Lewis, said that the swells of the ocean were rolling the ship fairly severely. This pass coming up over the Rose Knot will be the last one for this morning and then flight director, John Hodge, will release the ship until the orbits precess again over that ship. At 62 hours and 21 minutes after lift-off this is Gemini Control.

END OF TAPE

This is Gemini Control. 63 hours and 20 minutes after lift-off. Gemini 7 spacecraft is now over the Coral Sea just east of Australia and is nearing the end of its 40th revolution. During the recent pass over the tracking ship, Coastal Sentry, which is a very low angle elevation pass of 1.3 degrees everything looked good on the telemetry readouts. The spacecraft communicator commented that the swells, the heavy ocean swells were rolling the flight controllers away from their consoles. This was the last pass of the day for the tracking ship, Coastal Sentry, and it was released by flight director, John Hodge. Meanwhile down at Cape Kennedy on launch complex 19, preparation for the Gemini 6 launch were preceeding. They have completed the intergration test with the Gemini launch vehicle and the spacecraft simulated flight is now scheduled for midnight Tuesday. They hope also to complete the final systems test in the spacecraft by , p.m. eastern standard time Tuesday. At 63 hours and 21 minutes after lift-off. This is Gemini Control.

END OF TAPE

This is Gemini Control, 64 hours and 20 minutes after lift-off. Gemini 7 at the present time is over the north portion of Africa and is at the beginning of the 41st revolution. The spacecraft just passed over the Canary Island Tracking Station where a tape dump of stored onboard data was made, Spacecraft Communicator at Canary is Jim Fuji. He said that all systems are go on the ground and that the environmental control system and fuel cell reactant pressures are all normal. Meanwhile at Kennedy Space Center, additional preparations for the Gemini 6 launch continue. At 10:00 a.m. today, central standard time, backup Gemini 6 pilots, Virgil I. Gus Grissom and John Young will participate in a spacecraft and launch vehicle interface guidance test which will last about 1 hour for the total test. At 64 hours and 21 minutes after lift-off this is Gemini Control.

END OF TAPE

This is Gemini Control, 65 hours and 20 minutes after lift-off. Gemini 7 spacecraft is now in the - nearing the end of its 41st revolution. There have been no passes over tracking stations for more than an hour since the last pass over the Canary Island station, however, in 12 minutes the spacecraft will be within range of the Eastern Test Range Stations at Grand Turk Island and Antigua. In 23 minutes from now it will again cross right down the middle of the Canary Islands tracking station acquisition area. The Red Team of Flight Controllers under Chris Kraft are now beginning to come into the Control Center to relieve the Blue Team. At 65 hours and 20 minutes this is Gemini Control.

END OF TAPE

This is Gemini Control Houston. Good morning. 66 hours and 6 minutes into the flight. The weather today looks like this. In general the weatherman says all the critical areas will have satisfactory weather for at least the next 2 days. In the mid-Pacific landing zone centered about 800 miles east northeast of Honolulu mostly cloudy skies with scattered rain, northeasterly winds at 20 to 25 knots raising seas to 7 feet. In the western Pacific landing zone centered 700 miles south southwest of Tokyo will be only partly cloudy with northeast winds of 10 to 15 knots and seas 2 to 4 feet. In the east Atlantic zone, 500 miles north of the Cape Verde Islands the skies will be mostly overcast with a cold front moving through the area will drive northeasterly winds of about 25 knots in the northwestern portion from light variable in the southeastern section. Waves will build at 8 feet behind the front. While ahead of the system waves will be about 3 feet. In the primary landing zone in the western Atlantic centered about 500 miles east of Miami partly cloudy skies continuing to prevail with widely scattered shower activity. Winds will be 10 knots or less with waves to 2 feet.

Interesting meteorological features which will be over flown during this day included extensive frontal cloudiness area in the western Pacific Ocean. The spacecraft just passed over the Canary Island Station. The ground observes some switch flicking activity going on onboard. There was no conversation so we are not exactly sure if they are both awake but we strongly suspect they are and we will probably hear from them as they go over Carnarvon this first time this morning about 20 minutes from now. This is Gemini Control Houston.

END OF TAPE

Gemini Control Houston here, 67 hours into the flight. Frank Borman took the wake up call this morning which went up from the Carnarvon station and he reported very briefly that everything was fine. The conversation went like this:

SPACECRAFT	Well that's about all we have for a recon like this, we are standing by.
CARNARVON	F.T.M. Flight, I command your real time T.M. off. Everything was looking good. We got a good fuel cell purge. All of our times will be on their post dispatch.
HOU FLIGHT	Then, ah, your summaries came in garbled. Would you play your tape back and give us some more summaries, please.
CARNARVON	Roger. Will do.
HOU FLIGHT	Did you get the C Band track? From Houston Flight.
CARNARVON	Go ahead, Flight.
HOU FLIGHT	Did you have the C Band beacon on?
CARNARVON	That's affirmative
HOU FLIGHT	Did you get track?
CARNARVON	Ah. We have one minute and 29 seconds of track.
HOU FLIGHT	Ok. I think we want you to play that back also. Stand by.

END OF TAPE

We regret due to a mechanical difficulty in our taping facility, we did miss the conversation over Carnarvon, but the brief conversation went like this. Borman reported that everything was fine. He also advised the ground that he had taken off the EEG leads to his head, these are the leads that were to sample his -- the depth of his sleep. They became loosened yesterday and apparently he had no way of affixing them back to the four spots on his head. So, they removed them completely.

We've just completed a pass across the Lesser Antillles. Elliot See was in conversation with Jim Lovell and Lovell reported a very quiet night. Said he did get a little bit chilly in his underwear. But all in all it was quite comfortable and had decided against putting on his orbital flight suit. As a warming up precaution, we have the tape conversation of the Antiqua Pass. We'll play it now.

HOU FLIGHT — Gemini 7, Gemini 7, Houston Cap Com. Seven, Houston Cap Com.

SPACECRAFT — This is Gemini 7, read you loud and clear.

HOU FLIGHT — Roger, 7, good morning.

SPACECRAFT — Good morning, flight.....garbled....

HOU FLIGHT — How's breakfast going?

SPACECRAFT — My compliments to the chef. Tell Paul LaChance that today's Five Meal A was

excellent.

HOU FLIGHT — Roger. Just 'cause you're eating day five, don't think you've only got nine days to go.

SPACECRAFT — It keeps us happy that way.

HOU FLIGHT — Are you so busy eating that you can't talk to me for a few minutes?

SPACECRAFT — Roger, Frank's doing the S-8/D-13, I'm available.

HOU FLIGHT — O. K. Is it handy for you to give us a water report at this time? We're trying to calculate your weight distribution pretty accurately.

SPACECRAFT — Roger, standby. The command pilot, as of this morning, 271 ounces.

HOU FLIGHT — Roger.

SPACECRAFT — The command pilot ate five meal A this morning, he did not eat the sausage patties.

HOU FLIGHT — I don't need that part, Jim. Just the water.

SPACECRAFT — It was 216 ounces. 216 ounces.

HOU FLIGHT — Roger. Also, I'd like to ask you about the 16mm camera film magazine stowage. Specifically, did you stow them in individual

bags? Or, several in one bag? And, specifically, when you stowed them, as best as you can remember, that is how soon after launch?

SPACECRAFT We stowed them in two bags. Split them up evenly. No, it was three bags. Stowed them in three different bags. We did it about 5 or 6 hours after launch.

HOU FLIGHT Roger, five/ to six hours after launch. We're still chasing that one around. O. K. Jim, Like to brief you on possible -- definite maneuver plan that we are working on. Did they brief you on this at all last night?

SPACECRAFT No, they just mentioned that we are going to do a small posigrade maneuver sometime today.

HOU FLIGHT That is correct, that will be done on the 44th rev, which is two from now. And the purpose of it is to allow us an option of optimizing for an eighth/or ninth day launch on Gemini 6. We will not have to decide which of those days we are optimizing

for until the fifth day, by making this burn today. Do you copy?

SPACECRAFT Rog, understand.

HOU FLIGHT Gemini 6 is going along extremely well. They're about a day ahead at this time. So, we want to preserve this option and this maneuver today will enable us to do that. We're planning for you to do it without the platform. If that sounds all right to you, we'll brief you on the stars here in a minute.

SPACECRAFT Rog, no platform, understand.

HOU FLIGHT O. K. we'll be giving you more information on that burn in the flight plan update on your next pass over the U.S. And we'll be giving you specific update for the maneuver at some later time also. How is the suit configuration working out? We heard the comments over Carnarvon. Do you have any additional comments to make to that? Any closed in problems or anything like that?

SPACECRAFT The suit configuration is working out very well. I am out of the suit. I got

slightly cool last night while I was sleeping. However, I'm fine right now.

HOU FLIGHT — Roger, have you thought about using the orbital flight suit at all?

SPACECRAFT — No, I don't want to break it out because it would make more of a housekeeping problem but I'm not that cold.

HOU FLIGHT — Roger. The headlines over the Gemini 7 story today says, "Lovell orbits in underwear."

SPACECRAFT — I feel sort of out of place up here.

HOU FLIGHT — Are you taking humidity readings occasionally and recording them?

SPACECRAFT R — Roger, we took a full set last night including some skin temperatues on myself.

HOU FLIGHT — Roger, and did you make a tape recording of your station keeping exercise.

SPACECRAFT — Roger, we've done that too.

HOU FLIGHT — Very good. I've got one more think I'd like to ask of you and that is to make an accurate sunset and sunrise time check. What we're interested in is to have you pinpoint what you would consider exact

sunrise and sunset times to check us on our flight planning activities. To see how close our computer program is giving us to what you consider sunset and sunrise.

SPACECRAFT Roger, we'll make accurate sunrise and sunset time check as soon as possible that we can do it.

HOU FLIGHT O. K. just any time is good and when ever you get just phone them down to us and we'll compare it with what the computer would say. That's all I have on this pass, Jim, we'll see you on next time around.

SPACECRAFT Roger out.

HOU FLIGHT Seven, Houston. We're going to crank up the tape again and you can tune in HF later on again if you want.

SPACECRAFT Roger, over, flight.

HOU FLIGHT It will be a few minutes before we get it going. Seven, we show you running down a little low on the hydrogen pressure you might prop that one up.

SPACECRAFT Roger, will do. We're reading 340 right now.

HOU FLIGHT Roger, we want your minimum to be 333.

You can hold it up around 445 if you want to.

SPACECRAFT Roger, will do.

END OF TAPE

Gemini Control here 68 hours 4 minutes into the flight. We are advised that shortly after 7 a.m. central standard time this morning the second stage of the Gemini 7 launch vehicle impacted somewhere west of Australis in the Indian Ocean. The estimated time of impact was 7:04 central standard time. During this next pass across the States, the Gemini 7 crew will be given a go for a 61-1 flight. The 61 would be the start of the 61st revolution, the 1 refers to the Western Atlantic landing area which is the prime landing area. We have the tape conversation of the Carnarvon pass just completed and here it is now.

Carnarvon Cap Com: Gemini 7, go ahead.

Borman: Roger, C-band solid track

Carnarvon Cap Com: Roger, Gemini 7. We have you go on the ground. I've got a map update and a PLA update whenever you are ready to copy.

Borman: We're ready for the map update.

Carnarvon Cap Com: Okay, we have node at 69 58 23, rev 44, longitude 152.3 West, at Ascension, 12 hours 25 minutes 00 seconds. ... 68 10 00 cabin temperature survey. 68 36 00, go--no-go at Texas. Did you copy?

Borman: Roger, I copied.

Carnarvon Cap Com: Okay, that concludes the flight plan update. When you are ready I have your PLA's.

Lovell: Go ahead.

Carnarvon Cap Com: 45-1, 69 58 08, 17+01; 46-1, 71 33 54, 16+08; 47-4, 74 23 33, 17+50; 48-4, 75 59 34, 16+45; 49-4. 5 25, 15+54; 50-3, 78 50 06, 18+28; 51-3, 80 26 19, 17+17; weather in all areas are good. These are for rolling reentries. Did you copy?

Borman: We have them all. Thank you.

Carnarvon Cap Com: Rog. We are standing by, Gemini 7.

Borman: Rog.

Houston Flight: The propellant quantity readout from him, please.

Carnarvon Cap Com: Rog. Gemini 7, Carnarvon. We would like a propellant readout, please, on board.

Borman: Roger. Getting 62 percent onboard.

Carnarvon Cap Com: Rog. Copied. 62 percent. Okay Flight, 62 percent.

Houston Flight: Rog, copied.

Carnarvon Cap Com: Systems look good on the ground, Flight.

Houston Flight: They sure do.

Carnarvon Cap Com: Carnarvon.

Houston Flight: Go ahead Carnarvon.

Carnarvon Cap Com: Roger, on our radar we are showing a 50 db above pressure for signal strength.

Houston Flight: Rog, what does it mean to you?

Carnarvon Cap Com: Stand by, we are figuring it out in DDM, Flight.

Houston Flight; I'm just kidding you.

Carnarvon Cap Com: Our network asked us to check it.

Houston Flight: Rog. All the engineers are trying to take over the world.

Carnarvon Cap Com: Okay, I'm going to turn real time TM off at LOS minus 30.

Gemini Control here, again. In addition to the other activities across the States this time a transponder check will be performed with the Cape. The Cape will bounce the signal up to the L-Band transponder in the nose of the Gemini 7 spacecraft. The transponder will then rebroadcast the signal back to the ground. This is a repeat of the test that was performed yesterday

and was not successful apparently because the Cape did not have exactly the correct pointing data. Since we left the Canaries last time, we have been beaming HF music up to the Gemini 7 spacecraft and it's continued now around the world. Let's tune into that now.

Now in the voice Control Center here in MCC. Music will be back in just a few minutes and when it does return we will punch it back up.

END OF TAPE

Gemini Control here. Sixteen hours 36 minutes into the mission. Our present orbit shows an apogee of 171.4 miles. Our parogee 120.2 miles. After maneuver this morning, which is presently planned about an hour from now at precisely 69 hours 43 minutes into the mission, the adjustment will be to the parogee. We plan to elevate it to 126 miles. Elliot Sea has just contacted the spacecraft. He is in contact now through the Texas station. Let's cut in on that conversation live.

SPACECRAFT ... ECS 02 position.

HOUSTON FLIGHT Roger. You have a "go" for 61-1.

SPACECRAFT Roger. We have a "go" for 61-1.

HOUSTON FLIGHT Roger. And I have a POA when you're ready to copy and a flight plan update when you're ready to copy.

SPACECRAFT Roger. Would you like to have our system check now at this time?

HOUSTON FLIGHT Go-ahead.

SPACECRAFT All main batteries are okay, about 23 volts each. Fuel cells (garble)..... .are: 1-A 2.5 amphs, 1-D 3.0 amphs, 1-C 3.0 amphs, 2-A 2.5 amphs, 2-B 2.5 amphs, 2-C 3.5 amphs. Main bus is reading 27.8 volts. RCS A pressure is 2900. RCS B 2900. Left secondary 02 5400. Right secondary 02 5300. Temperatures of both the RCS pressures are 75 each.

HOUSTON FLIGHT Roger. Copy.

SPACECRAFT — He has the thermometer in his mouth, and standing by for post status check.

HOUSTON FLIGHT — That won't be until the next pass, Gemini 7. We're going ahead with flight plan update on this pass.

SPACECRAFT — Roger. Understand.

HOUSTON FLIGHT — Let me know when you're ready to copy your flight plan update.

SPACECRAFT — Seven's ready to copy.

HOUSTON FLIGHT — Roger. Okay. Time 684300. Sequence 01. Transponder check at Bermuda. That is on this pass if you want to be setting up for that.

SPACECRAFT — Roger.

HOUSTON FLIGHT — Time 685400. Crew status report at Canary. This is on the pilot.

SPACECRAFT — Roger.

HOUSTON FLIGHT — At time 694319 will be the forward burn translation for the perigee adjust. We'll have a direct update on that for you here in a minute.

SPACECRAFT — Roger. Understand.

HOUSTON FLIGHT — Would you like to take that now or get the rest of the flight plan update?

SPACECRAFT — Let's get the rest of the flight plan update, and then we'll get that presently.

HOUSTON FLIGHT — Roger. Apollo landmark 701032. Sequence 311. Mode 01. Pitch 30 degrees down. Yaw 5 degrees left. Time 701500. Crew status report on the command pilot over the U.S. Do you copy?

SPACECRAFT — Have copy.

HOUSTON FLIGHT — D-9 704130. Sequence 01. Mode 01. Time 713200. Purge fuel cells. S8D13 714726. Sequence 02. Pitch 30 degrees down. Yaw 8 degrees right. Closest approach 714822. Do you copy?

SPACECRAFT — Roger. Have copy.

HOUSTON FLIGHT — D-4 D-7, 714726. Sequence 419. Mode 02. Time 720000, Exercise period. Stand by for a TR update coming up.

SPACECRAFT — Roger. Received

HOUSTON FLIGHT — Roger. Time 721000, Eating period. Apollo landmark 730840. Sequence 234. Mode 01. Pitch 30 degrees down. Yaw 2 degrees right. D-4 D-7, 730840. Sequence 420. Mode 02. Do you copy.

SPACECRAFT — Roger.

HOUSTON FLIGHT — S8 D-13, 732220. Sequence 02. Pitch 30 degrees down. Yaw 1 degree right. Closest approach 732220. MSC 2 and 3 734000. Sequence 02. Off at 890000. Do you copy?

SPACECRAFT — Roger. I've got it.

HOUSTON FLIGHT — Jim, I want to interrupt here and give you the pad update on the maneuver load just in case we run out of time here.

SPACECRAFT — Roger.

HOUSTON FLIGHT — Let me know when you're ready to copy.

SPACECRAFT — Ready.

HOUSTON FLIGHT — You say you're ready, Gemini 7?

SPACECRAFT — Gemini 7 is ready.

HOUSTON FLIGHT — GET of the burn 694319. Delta V 12.4. Burn time 16.5 seconds. Yaw 0, pitch 0. Add thrusters. Maneuver posigrade. And we will update this over Carnarvon, if required. Do you copy?

SPACECRAFT — Roger. GET at 694319. Delta V 12.4. Delta T 16.5 seconds. Yaw and pitch are zero. Add thrusters, posigrade. Requiring star. Over.

HOUSTON FLIGHT — Roger. Here is the information on the star. You'll be SEF and you'll be just

HOUSTON FLIGHT .. coming out of the dark at this time, as a matter of fact. You're track, or your pointing should pass just about half way between Denebola and Spica and Arcturus will rise at 6934, correction... 693941. You should aligh 4.9 degrees right of Arcturus. Do you copy?

SPACECRAFT Roger. Our lateral will be 4.9 degrees right of Arcturus which should be rising at 693941 and our general position between Denebola and Spica will be SEF.

HOUSTON FLIGHT That's correct. Okay, we'll continue with the flight plan update now if you're ready. Gemini 7 do you still copy?

SPACECRAFT Roger. Transponder on. Houston, this is 7. Go ahead.

HOUSTON FLIGHT Okay. MSC 4 734535. Sequence 09. Mode 01. Pitch 30 degrees down. Yaw 10 degrees right... correction ... 10 degrees left. This may be scrubbed due to equipment problems. We'll let you know later. D-4 D-7, 740000. Sequence 415 at 416. Mode 02. Pitch 90 degrees down. Do you copy?

SPACECRAFT Roger.

HOUSTON FLIGHT — Okay, that's the end of the flight plan update. We'll be giving you a systems review status of all your systems and quantities and so forth if you want to have your systems book out, either on the next pass or the following one, depending on how long the crew status report takes on the next pass.

SPACECRAFT — Roger. Understand that.

HOUSTON FLIGHT — You can turn your ECS quantity read off.

SPACECRAFT — Read switch is off at this time.

HOUSTON FLIGHT — There are some questions on the D-9 experiment. We probably won't have time to finish them here. Let me comment one thing. After you leave our station here you might tune in your HF; we've got some special music for you. Okay, on the D-9 we're wondering about the green filter comments that you made on the air glow measurements. Does the filter dim the air glow substantially?

SPACECRAFT — Using the green filter on the first attempt, it eliminated the air glow completely.

HOUSTON FLIGHT — Roger. Okay, I think that covers all the rest of the questions, Jim.

SPACECRAFT Roger.

HOUSTON FLIGHT Okay, you can tune for the special music now. We'll see you next time around.

SPACECRAFT See you around.

Gemini Control here. We'll take Elliott Sea's suggestion and tune in too, and see what the special music is. Let's listen.

END OF TAPE

This is Gemini Control Houston here, 69 hours 3 minutes into the flight. We have the medical data pass that was just completed over the Canary's. The conversation on the status of Jim Lovell talking to the Canary Surgeon. Here is the tape.

CYI Surgeon: Gemini 7, Canary, read you loud and clear.

Lovell: Sending oral temp now.

CYI Surgeon: Okay. Haven't got it yet. Here it comes. We have a valid temperature. Standing by for blood pressure.

Lovell: Coming now.

CYI Surgeon: Cuff is full scale.

CYI Cap Com: Spacecraft systems are go on the ground.

Houston Flight: Roger, Canaries.

CYI Surgeon: Gemini 7, Canary Surgeon. We have a valid blood pressure. We will stand by for exercise on your mark.

Lovell: MARK.

CYI Surgeon: Cuff is full scale. Gemini 7, we have a valid blood pressure. Standby for your food and water and sleep report.

Lovell: Roger. Command Pilot water to date 274 ounces, ate meal day 5, meal A at 66 hours. Pilot's water to date, 218 ounces, standby for information on food.

CYI Surgeon: Roger, understand. What about sleep?

Lovell: Both the Command Pilot and Pilot had about 7 hours sleep at about 3 or 4 periods last night, a piece.

CYI Surgeon: Could you give us an estimate on the quality of the sleep?

Lovell: I would say it was very sound.

CYI Surgeon: Roger.

CYI Surgeon: Gemini 7, this is Canary Surgeon out. Thank you very much.

Lovell: Roger.

CYI Cap Com: Canary.

Houston Flight: Go ahead.

CYI Cap Com: Roger, do you have a time for them to turn the transponder off? We show it on here on the ground.

Houston Flight: We want it on, and I am pretty sure we want it on for something like 8 revs, stand by a minute.

CYI Cap Com: Okay.

Houston Flight: Have him turn the transponder off.

CYI Cap Com: Oh, roger, fine. Gemini 7, Canary. Gemini 7, Canary.

Lovell: Gemini 7, Go ahead.

CYI Cap Com: Roger. You can turn off your transponder if you wish.

Lovell: Roger, transponder going off.

CYI Cap Com: We show it off on the ground.

Houston Flight: Rog.

CYI Cap Com: We are showing a transponder case temperature of 54 degrees.

Houston Flight: Rog.

CYI Cap Com: Canary has LOS.

END OF TAPE

Gemini Control Houston here, 69 hours 38 minutes into the flight. During the next pass across the States, we expect a rather full medical status report from the Command Pilot, Frank Borman. We should also at that time get additional information on what happened to the EEG leads to his head last night. According to the best information we have now, they did become loose from the four spots where they are attached to the rear of his head and he had no way of affixing the leads to his head so he simply elected to take them off. Dr. Berry theorizes he probably took out his sissors and cut the wires at about his neck where the wire leads went down into the suit. This was the plan after four full sleep periods, however, the experiment probably only got data for one full sleep period. We have a brief conversation that we just finished over the Carnarvon station. We will play it for you now.

CRO Cap Com: Gemini 7, Carnarvon.

Lovell: Carnarvon, go ahead.

CRO Cap Com: Roger, you are go for your burn. We would also like to tell you that your onboard propellant quantity reading should be 59 percent after your burn. Also, at 77 hours and 30 minutes your propellant quantity should be 55 percent. We have a deletion for your flight plan when ever you are ready to copy it.

Lovell: Roger, stand by. At 77 hours it should read 55 percent.

CRO Cap Com: That is affirmative, 77 hours and 30 minutes it should read 55 percent.

Houston Flight: After the Flight Plan completion.

CRO Cap Com: That is after the Flight Plan completion.

Lovell: Go ahead now with the deletion.

CRO Cap Com: Roger, at 70 10 32, delete Apollo landmark, due to weather.

Lovell: We copied.

CRO Cap Com: Roger. We are standing by.

Lovell: Give me a time hack please.

CRO Cap Com: Roger. Next g.e.t. time hack it will be 69 hours 32 minutes and 35 seconds on my MARK. MARK.

Lovell: Right on.

CRO Cap Com: Rog.

CRO Cap Com: Systems look good, Flight.

Houston Flight: Thank you.

This is Gemini Control. That concludes the Carnarvon conversation. Meanwhile we are still sending music up to Gemini 7. We do not know how much of it they are monitoring or how the reception is, but it sounds like this. (MUSIC PLAYS).

Cape Kennedy: This is Cape Kennedy, Florida, transmitting on 15016 spacecraft frequency to the astronauts of Gemini 7.

END OF TAPE

By remoting through Canton Island, Elliot See has just raised the Gemini 7 spacecraft and inquired about the effectiveness of their burn. Frank Borman advised the burn went off right on schedule at 69 hours, 43 minutes into the flight. He said he burned the appointed time, 16 and a half seconds, and his statement was, "It should have been a good one." We have that brief conversation and will play it for you now.

CAP COM Gemini 7, Gemini 7, Houston Cap Com. Gemini 7, Houston Cap Com. Gemini 7, Gemini 7, Houston Cap Com.

S/C Read you loud and clear.

CAP COM Will you give us a report on your burn, Frank?

S/C Gemini 7 burned 16½ seconds. It should have been a good one.

CAP COM Roger, understand you burned for 16½ seconds, it should have been a good one.

S/C We also have the sunrise and sunset now for you.

CAP COM All right, go ahead.

S/C Sunrise was at 69:43:17.

CAP COM Gemini 7, go ahead we got the sunrise, we did

not get the sunset.

S/C Sunset was at 69:11:19.

CAP COM Roger, understand sunrise 69:43:17, sunset 69:11:19.

S/C That is roger.

CAP COM Roger, how is this connection? Are you reading us good?

S/C Reading you fine now.

CAP COM Roger. Stand by.

END OF TAPE

This is Gemini Control Houston. Seventy hours, seven minutes into the mission. Guymas station has just advised that they have acquired contact and we'll probably be in voice contact momentarily. Meanwhile, during this pass, we plan to vary their musical diet somewhat. We plan to play the following four numbers for them. We'll lead off with Beethoven's 6th Symphony, to be followed by Chopin's "Les Sylphides", then "Hungarian Rhapsody #2" by Listz, and finally Puccini's "Madame Butterfly". This is what they are listening to if they are tuned in to HF.

END OF TAPE

This is Gemini Control Houston, 70 hours 23 minutes into the flight. We have just completed a medical pass with the Command Pilot and in the course of the pass, Dr. Berry noted some huskiness in the voice of Jim Lovell. He chatted with him about this and Jim said that he noted it too, apparently, no great difficulty but he does appear to have a little huskiness or gravly quality in his voice. It is generally attributed to the oxygen environment. Immediately after that it is Frank Borman who comes back in a very high voice and asked Dr. Berry how he sounds. We have the tape and we will play it for you now.

Houston Cap Com: Gemini 7, Gemini 7. Houston Cap Com.

Lovell: This is 7 reading you loud and clear.

Houston Cap Com: Roger, would you put the probe in your mouth.

Lovell: Roger. Temperature is in Frank's mouth.

Houston Cap Com: Roger. Could you tell me how the OAMS quantity gauge looks?

Lovell: Roger, looks OAMS quantity gauge reads 59 percent.

Houston Cap Com: Very good. Has he had the thermometer in for quite a while?

Lovell: No, he's still doing it.

Houston Cap Com: Roger. Stand by for Houston Surgeon.

Houston Surgeon: Frank, this is Surgeon. Let's go ahead with the blood pressure with the probe in while it is coming up, Frank. Let's get your first blood pressure. Your cuff is full scale. A valid blood pressure.

Lovell: Beginning exercise.

Houston Surgeon: Roger. Gemini 7, this is Surgeon. Jim, what probe

does he have in. Is it the one with the lightweight headset?

Lovell: Roger, he has the one with the lightweight headset. Pressure coming through.

Houston Surgeon: Your cuff is full scale. Valid blood pressure. Gemini 7 you can also remove that temperature probe, Frank.

Borman: Goody.

Houston Surgeon: Gemini 7, this is Surgeon. Frank, we have no more to add I think to your food, water and sleep report. We have all of that data from Jim on the last pass. I would like to ask a few questions here. One, what about the exercise before meals. Have you been doing those as programmed now?

Borman: Check. We missed some yesterday due to the heavy work load, but we did make a pack that we are going to do them religiously today.

Houston Surgeon: Very good. Are you feeling stiff at all today, Jim?

Lovell: Not too stiff, just around the waist it is a little stiff, you have to keep hunching your back a little back a little bit due to our sitting position.

Houston Surgeon: Gemini 7, right now you sound as if your voice is getting a little bit gravly, we heard this on a couple of occasions yesterday. Have you had any hoarsness or dryness in the cabin at all, any other - any symptoms at all?

Lovell: My voice sounds a little voice rough in the cabin too, it might be due to the oxygen, but no other problems.

Borman: How do I sound, Chuck?

Houston Surgeon: You must be breathing helium!

Borman: We are feeling fine. I'm sorry about the EEG experiment. The harness caught as I was trying to put something away and ripped them off - I ripped 3 of them off, so we tried last night but we just couldn't put them back on satisfactorily.

Houston Surgeon: That is perfectly understandable, Frank. You didn't have the proper equipment for trying to replace those and it was just an attempt - it would be a real amazing thing if it did work out. It was worth a try and we are sorry it didn't do.

Borman: It didn't (garbled) anyway.

Houston Surgeon: Rog. We have one other thing. I wonder if in the reporting on the meals, you are doing very well in reporting meal number and reporting the time you had that meal which is real helpful to us in our log here. Is it possible from your log of the water to at the time that you had a certain meal at a given hour, could you also give us with that your water intake at that time so that we can get some additional points on our curve here, it would make it easier to split in to 24-hour periods. Is that easy to do?

Lovell: We can give you the water that we had for the meal which is perfect at the same time with the meal plus the water we drink after meal time. How is that?

Houston Surgeon: That would be very fine, Jim, if you could do that. I have nothing else here.

Houston Cap Com: Gemini 7, Houston. We have the news for you if you are ready.

Lovell: That is a good diversion, go ahead.

Houston Cap Com: John Mecom has just bought half of Houston, it seems like. He has bought 5 major properties of the Jones Family including the

Chronicle, the Rice Hotel, and a third interest in the Texas National Bank of Commerce.

Lovell: That's nice.

Houston Cap Com: The Russian moonshot Luna 8 did not work. Apparently they hit the moon pretty hard. I guess you heard about that last night.

Lovell: Roger.

Houston Cap Com: And I might mention the Gemini 7 story talks about your well-dressed pilot. There is also a comment that the press is calling the MCC the Kraft Music Hall. We had another big power blackout last night. Electrical power was out for about 25 minutes in 10 counties in East Texas. And finally, there are only 18 shopping days till Christmas.

Lovell: (garbled)

Houston Cap Com: That is all we have on this pass Gemini 7.

Lovell: Thank you for the news, Elliott.

This is Gemini Control here again. The - for the period just before this pass started, we here in the Control Center turned over the use of the command system to the Cape. There - the spacecraft tests are going on down there and they wanted to run through a series which required the use of the command system. We did not need it, so we turned it over to them for a period of roughly from 30 minutes after the hour to about a quarter of. This is Gemini Control Houston, out at 70 hours 30 minutes into the mission.

END OF TAPE

This is Gemini Control Houston here at 70 hours, 37 minutes into the flight. We have this brief conversation over the Canary Station. The tag line of which is Chris Kraft congratulating the station on another good work day. The spacecraft will now drop away from the Canary Station and they'll have a 10 to 12 hour rest period. Here's the tape.

SPACECRAFT Canary, this is Gemini 7

CYI Roger, we have you going again. All systems look good.

SPACECRAFT Roger, thank you Canary.

CYI Rog, from Bermuda vector your ephemeris right now is 127.2 by 171.4. Exactly what we asked for.

SPACECRAFT Roger, thank you.

HOU FLIGHT Ask him if he is still receiving HF.

CYI Say again flight.

HOU FLIGHT Ask him if he is still receiving HF.

CYI Roger. Seven, Canary.

SPACECRAFT ROG.

CYI Roger, are you still receiving HF.

SPACECRAFT We aren't, we've been so busy we haven't been playing it but I can try though.

CYI O. K.

SPACECRAFT Roger, coming in a little garbled.

CYI Roger.

Canary LOS

HOUSTON FLIGHT Roger Canary, good show there today young man.

END OF TAPE

Gemini Control Houston here. Seventy hours 57 minutes into the flight. In the next thirty minutes our flight plan calls for a fuel-cell perge over Hawaii and very little activity over the states next time it appears. While passing over Tananarive about five minutes ago, we had this brief conversation. We'll play it for you now.

HOUSTON FLIGHT	Space 7, Houston. Were you calling?
SPACECRAFT	Roger....
HOUSTON FLIGHT	Gemini 7, you are very weak. Will you say again.
SPACECRAFT	The green filter on this sextant blocks out the horizon completely.
HOUSTON FLIGHT	Roger, you say you're not using it at all.
SPACECRAFT	We're using the yellow filter.
HOUSTON FLIGHT	Roger, I read you.
HOUSTON FLIGHT	O.K. Did you get our AT 22Z mission instruction?
SPACECRAFT	We sure have.
HOUSTON FLIGHT	O.K. We have no special instructions for you this time. We want you to get C-band track and leave the transponder off for Womera. Our LOS is 184806.

END OF TAPE

Gemini Control Houston. 71 hours and 14 minutes into the mission. Spacecraft directly over the Australian mainland. We have tape from the Carnarvon station. We will play it for you now.

CARNARVON Gemini 7, Carnarvon, we have your TM spotted. Everything looks good on the ground. Carnarvon, standing by.

SPACECRAFT Thank you. We're under D9 now.

CARNARVON OK

SPACECRAFT C-Band track.

CARNARVON Roger. C-Band track. Were you receiving our HF in Australia?

SPACECRAFT I could hear it in the background slightly. It's real weak.

CARNARVON What are we playing?

SPACECRAFT Stand by and I'll see if I can recognize it. Sounds like I'll be home for Christmas, right?

CARNARVON You got it right. It's the 64 dollar question. You can buy your ticket.

SPACECRAFT Roger. Roger.

CARNARVON In fact you get a free transport to the US

SPACECRAFT Thank you, sir.

CARNARVON Would you like to try for 128?

SPACECRAFT Go ahead.

CARNARVON This one you lose your ticket and you stay in Australia.

SPACECRAFT Is it that bad?

Hey, that one is Going Back to Houston.

CARNARVON You can try for 256

SPACECRAFT How's that one

CARNARVON I'd quit while you're ahead.

SPACECRAFT I'll quit.

CARNARVON We are going to play some classical music next and really fix you.

SPACECRAFT OK my scientific approval on that. LOS flight signing off.

CARNARVON Roger. Everything looks real good here on the ground.

SPACECRAFT Roger.

END OF TAPE.

This is Gemini Control Houston at 71 hours 39 minutes into the flight. Over Hawaii the crew carried out the fuel cell purge and the conversation went like this.

HAW Cap Com: Gemini 7, Hawaii Cap Com.

Lovell: Go ahead Hawaii, Gemini 7.

HAW Cap Com: How are you doing this morning? How are you doing up there this morning?

Borman: Stand by for a fuel cell purge.

HAW Cap Com: Okay, we are showing you go here on the ground. We are ready for your purge. Go ahead and start it.

HAW Cap Com: Command Pilot, if you can copy I've got a short flight plan update for you.

Lovell: Stand by a minute.

HAW Cap Com: All right.

Lovell: Go ahead.

HAW Cap Com: S-8/D-13, 71 47 26, sequence 02, delete weather.

Lovell: You want us to delete that because of weather?

HAW Cap Com: Roger. D-4/D-7, 71 47 26, sequence 419, mode 02, start at Mississippi River and continue to Atlantic coast.

Lovell: Roger, we have that.

HAW Cap Com: Roger, that is the flight plan update. Would you put your quantity read switch to ECS O_2 please.

Lovell: Roger.

Borman: Hawaii, this is Gemini 7. Do you have any word on the weather over Houston.

HAW Cap Com: Hold on a second, let me check. What is the weather over Houston, Flight?

Houston Flight: It was clear when I can in this morning. Standby 1.

HAW Cap Com: They have to get somebody to look outside. They have no windows in that building.

Borman: All right.

Houston Flight: High scattered clouds.

HAW Cap Com: They say they have high scattered clouds.

Borman: Okay, fine.

HAW Cap Com: Quantity read switch to fuel cell O_2 position.

Borman: Rog.

HAW Cap Com: Flight the fuel cell quantity O_2 tank pressure on the 12 18 is reading 304 psi.

Houston Flight: Rog.

HAW Cap Com: Quantity read switch to fuel cell H_2 position. We have LOS Flight.

Gemini Control here. That was capsule communicator, Ed Fendell operating from Hawaii. We have not yet acquired a signal in California. It is expected momentarily. You heard the crew updated on their activities across the States this time. They are to start at the Mississippi River and take an infrared signature of the land mass between the Mississippi River and the East Coast. Still no calls going out. After the State side pass, the flight plan calls for the crew to go through a period of isometric exercise and they will have a rest period following that. The rest period coming through the dark portion of this next pass, roughly between Ascension Island and Carnarvon. We are on revolution 45, our orbit number is 48. The present

apogee is 171.4 miles and our perigee is 127.2, 127.2 nautical miles. While the Gemini 7 and 6 activities are keeping us quite busy here on the third floor of the Control Center, activities are going on in other parts of this building. Down on the second floor, Missions Operations Control room, which is a duplicate of this room that we are talking to you from, simulations and confidence testing leading up to the first Apollo 201 flight, presently scheduled for the first quarter of next year are underway. The Apollo Flight Control Team under the direction of Glenn Lunny carried out a number of launch abort simulations last night. Today they are - there is only confidence testing going on on the various consoles. Tomorrow they plan to do a full scale network simulation. They will be working on a profile of the 201 flight which is - which calls for the Command Module and Service Module to fly approximately 4000 miles down-range, impacting near Ascension Island. It will be a test of the heating characteristics of the command module and it will be a first in space test of the service module engine.

Apparently they are going to wait for - there goes Elliott See's first call. Let's tune in on that.

Houston Cap Com: Gemini 7, Gemini 7, Houston Cap Com.

Borman: Go ahead Houston, Gemini 7.

Houston Cap Com: Roger. We would like to have you take a look at the weather in the Houston - in the Laredo area this time in preparation for a possible pass next time. Can you see it at all?

Borman: Roger, Houston.

Houston Cap Com: Gemini 7, Houston. Could you place your quantity read switch in the fuel cell hydrogen position. We are not sure we got a

good readout at Hawaii.

Borman: I read about 380.

Houston Cap Com: Roger. Can you see Laredo at all?

Borman: We are not there yet.

Houston Cap Com: Okay. When it is convenient I would like to run over the systems real quick with you.

Borman: Okay, standby a minute, please.

Houston Cap Com: Gemini 7, you have a TX coming up in about 30 seconds.

Borman: Thank you.

Borman: We are over Laredo now. It may be good next pass, it is just very high Cirrus at the bottom.

Houston Cap Com: Roger 7, we will give it a try next time if we can get it set up.

Borman: All right.

Houston Cap Com: You got your book out yet.

Borman: Say again.

Houston Cap Com: You got your book out yet.

Borman: Standby just a minute please.

Borman: Smile, Elliott.

Houston Cap Com: Are you ready.

Borman: We are taking your picture.

Houston Cap Com: Oh, okay.

Houston Flight: That's all we have down here, smiles, Frank.

Borman: Roger, Chris. Boy it is really a clear day. We are coming right over Houston now. The Astrodome stands out like a sore thumb. We can see the whole works.

Houston Flight: Roger.

Houston Flight: Can you associate the music, the HF reception with the day-night cycles at all, or has it been generally good all the way around.

Borman: It's been good.

Borman: Okay on the systems.

Houston Cap Com: Okay, and you can turn off your H_2 switch now.

Houston Cap Com: Okay, first curve I have in your book here is the estimated propellant usage. If you adjust the curve down for the maneuvers we have made ahead of time down here, raising the perigee, we feel that you are running about 12 pounds ahead on that curve. That is approximately 70 hours.

Borman: Okay.

Houston Cap Com: Next one is primary O_2. As you know you show ending up with about 38 percent at completion of the mission, we show you running about 4 percent ahead of that at the present time.

Borman: Rog.

Houston Cap Com: Next one is fuel cell cyro's. We show you expecting about 15 percent at completion of mission. We show you running about 2 percent ahead of that on oxygen and 4 percent ahead on hydrogen.

Borman: Roger.

Houston Cap Com: On the water, we show you running at just about on the line for water usage, based on equipment adapter water only, of course, in addition to that you have your retro water, so it looks like you are in real good shape on that.

Borman: Roger.

Houston Cap Com: In regard to the cryo pressure behavior last night, you are probably as familiar with that as we are. I understand you did not have to pump any of them up during the night. They all held very well. The ECS O_2 usage appears to drop substantially during the sleep period, and so it is holding very constant at about 700 pounds, we show here. The fuel cell oxygen pressure dropped the most of all of them. Apparently we have a real good bottle there. It is pretty well insulated and the pressure came down. You had bumped it up to about 870 or so on our pressure here and that came down during the night, back down to about 500 on our gauges, so it looks like we have a real good bottle there. Hydrogen came down a little bit, I think it dropped about 50 pounds or so during the night. It looks like we are in real good shape on everything.

Borman: Very good.

Houston Cap Com: Did you get these onboard gauge readings to be used for your cryo temperature control, or pressure controls. We have a set of readings here which are good until about 80 hours if you would like to use them.

Borman: Okay, standby. I'll copy them.

Houston Cap Com: Roger.

Borman: Go ahead.

Houston Cap Com: Okay. ECS O_2, we have a minimum of 417, a nominal range of 500 to 582, these are your onboard gauge readings. Fuel cell O_2 minimum 208, nominal 333 to 500. Fuel cell H_2 minimum 333, nominal 445 to 500. Did you copy?

Borman: Roger. Thank you.

Borman: That Hi-fi is really coming in great now, Elliott.

Houston Cap Com: Roger, we are getting it pretty good here too. Is it seeming to hold all the way around, or do you get fade-outs in certain areas?

Borman: We get fadeouts in areas, but it sure is good over here.

Houston Cap Com: Does it seem to be related to the day-night cycle at all?

Borman: We haven't noticed at all. Actually when we get real busy we turn it off and it would be difficult to relate it to anything we were working.

Houston Cap Com: Roger.

Houston Cap Com: Frank, that burn worked out real well. I'm real pleased to see that you were able to do that well with the platform down.

Borman: Roger. If you get the right stars you can't miss.

Houston Cap Com: How about the pitch reference. Do you feel you need - any - do you feel that it is any problem at all?

Borman: Say again.

Houston Cap Com: I say do you feel that the pitch reference is any problem?

Borman: Pitch is no problem.

Houston Cap Com: Okay.

Borman: As a matter of fact, the moon is so bright we can even pick up our yaw at night off the clouds below.

Houston Cap Com: Roger. Gemini 7, Houston. Do you know roughly what the time left on your D-4 recorder is?

Borman: Standby and I'll give it to you exactly. 17 minutes and 20 seconds are left, but if you want us to, we can play it back.

Houston Cap Com: Roger. Have you seen any Aurora on your night passes.

Borman: Negative.

Houston Cap Com: Roger.

Borman: Meteors either. Just quite a bit of fires over Africa and a lot of thunderstorms over the Amazon.

Houston Cap Com: Roger.

Grand Turk: LOS, Grand Turk.

This is Gemini Control here. That apparently concludes the conversation on this State side pass. You heard Frank Borman advise to Eliott see that the HF reception today has been remarkably good around the globe. When he was talking to Eliott about that, the tune being piped up on UHF was one entitled "High Hopes". This is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston. Seventy-two hours, forty-one minutes into the flight. All has been quite since we left the Antigua area in the last pass. Ascension Isle and Tananarive were up, however, there was no conversation. The crew, according to the flight plan, has been having lunch. We are now in contact with them by Carnarvon. The Carnarvon Cap-Com, Ambers S. Davis, is doing the talking with the crew. Let's cut in there.

SPACECRAFT — We have C-Band track.

CRO — Roger. C-Band.

We're Gemini Control, here. Apparently, the action was cleaned up fairly quickly there at the start of the pass. It amounted to flight plan updating, advising them to drop certain picture experiments. We really don't know if there will be any additional conversation or not. We'll just stand by, and keep the line open.

HOUSTON FLIGHT — Carnarvon, Houston Flight.

CRO — Flight, Carnarvon.

HOUSTON FLIGHT — Ask him to check his fuel cell hydrogen pressure for us. We read 170 from your site. Is that what you read?

CRO — That's affirmative. That's my reading.

HOUSTON FLIGHT — Will you ask him to keep it between 445 and 500, on his gauge.

CRO — Gemini-7, Garnarvon Cap-Com.

SPACECRAFT — Go ahead CRO.

CRO — Roge. Would you check your fuel cell hydrogen pressure, please.

SPACECRAFT — Roger. I'm reading 360 about. You want to run it up?

CRO — Flight, do you want him to run it up?

HOUSTON FLIGHT — Yea. We told him to keep it between 445 and 500.

CRO — Okay. Gemini-7, what we would like to do is have you keep it between 445 and 500.

SPACECRAFT — Okay. I was working on a minimum. They gave me a minimum of 333.

CRO — Okay, Flight just said he would like to have you keep it between 445 and 500. Would you run it up, please.

SPACECRAFT — The heat is on.

CRO — Roger. Thank you.

Gemini Control here. That apparently concludes the conversation over at CRO. During the next pass across the States, well backing up a bit. There is no activity scheduled for the Hawaii station. Then, over the States, the crew will make a pass across that big eye chart 40 miles north of Loredo and try to identify the slants and lines within those 2000 yard square boxes. After leaving the States, they will activate MSC 2 and 3, the electron-proton spectrometer and the flux-gate magnetometer. Once over Africa over in East Africa, from roughly Kano, and southeast of Kano, they will take an IR signature of the vegetation, just the open land. After leaving the African continent, the flight calls for them to do a cabin temperature survey; take a number of readings from many points around the cabin. This is Gemini Control, Houston at seventy-two hours, forty-eight minutes into the flight.

END OF TAPE

Gemini Control Houston here, 73 hours 4 minutes into the flight. We had planned this pass, up until roughly 20 to 25 minutes ago while we were over Carnarvon to attempt the Laser experiment from Hawaii and a similar experiment from Ascension. The weather defeated us at Ascension, and over Hawaii they are having a little trouble tuning up the equipment. They weren't satisfied that it was completely tuned up on the ground, so they waived off for this pass. They said at Ascension the cloud cover is such that we could not attempt it down there. This is Gemini Control Houston.

END OF TAPE

This is Gemini Control Houston, 73 hours 15 minutes into the flight. The spacecraft is just off the west coast of the United States. We have not heard Elliott See put out his first call yet, but we will stand by and pick it up when he does. Over Hawaii Borman did confirm that he did want to try S-8/D-13 pass over Laredo this time. He said he thought that the weather would support it. And they are all geared up to do that one. The second shift of flight controllers are moving into the Control Center here now. And the normal change of shift briefings are taking place at each console. I think it may be a couple of minutes before Gemini 7 is raised. Why don't we break out here and we will come back when that happens.

This is Gemini Control here. Elliott See is remoting through California and he has put in a call. We will stand by.

Houston Cap Com — Roger, are you all set up Frank for the S-8.

Spacecraft — Roger.

Houston Cap Com — Can I give you some items here and you just tell me when to stop. We have a - several items on the flight plan update.

Spacecraft — Roger, standby a minute. Go ahead.

Houston Cap Com — Okay, you just tell me when to stop here for your S-8.

Spacecraft — Fine.

Houston Cap Com — We have a slight change in the closest approach time for this S-8, the time is now 73 23 41.

Spacecraft — Roger.

Houston Cap Com — Are you just crossing the Coast of California now?

Spacecraft — We are coming up on it now.

Houston Cap Com — Okay. The next item is D-4/D-7, 74 00 00. Sequence 415 and 416, mode 02, cancel, weather. Did you copy?

Spacecraft — Roger, cancel. Weather.

Houston Cap Com — I'll just keep going here. I'll stop every item and you can tell me if I need to stop talking.

Spacecraft — Elliott, you had better stop it now. We are coming up over the coast and we will be there very shortly.

Houston Cap Com — Okay, give me a call when you are free to talk afterward.

Spacecraft — Roger.

Guaymas Cap Com — Houston, Guaymas.

Houston Flight — Guaymas, go ahead.

Guaymas Cap Com — Did you get our summary.

Houston Flight — Standby one. Affirmative Guaymas.

Guaymas Cap Com — Thank you very much.

Houston Flight — Your data looks good Guaymas.

Guaymas Cap Com — We are experiencing intermittent problems, we weren't sure if it was any good or not.

Houston Flight — Okay.

Gemini Control here. The spacecraft should be directly over Laredo now. We usually have this period of quiet before the experiment, then when the objects are sighted, the crew sounds off pretty quickly, so let's keep listening.

Spacecraft — No, we didn't pick it up. We had high cloud cover and we missed it.

Houston Cap Com — Okay, Frank.

Houston Cap Com — That was a real good pass, right almost directly over the sight. We thought you might be able to have some luck on that pass.

Spacecraft — Roger, well there is clouds, it's clear west but not right over there.

Houston Cap Com — Okay. What control mode did you use during the burn.

Spacecraft — Rate Command.

Houston Cap Com — Rate command, roger. And do you have any non-nominal stowage that you could mention. We are looking into the weight distribution.

Spacecraft — Say again please.

Houston Cap Com — Do you have any non-nominal stowage that you care to report. We have a question in regard to weight distribution.

Spacecraft — No, we are doing everything according to planned so far.

Houston Cap Com — Roger. Are you ready to finish copying the flight plan update?

Spacecraft — Standby one. Boy that Jetero stands out like a sore thumb up there.

Houston Cap Com — I didn't copy that last sentence.

Spacecraft — You can really see that new airport.

Houston Cap Com — Oh, Jetero, roger.

Spacecraft — All ready.

Houston Cap Com — Okay, Jim. It's 74 10 00, cabin temperature survey. S-6, 74 36 00, sequence numbers 4, 10 and 11. Jet stream Cirrus south of track. Did you copy?

Spacecraft — Roger.

Houston Cap Com — Time, 74 41 00, purge fuel cells. That will be at Hawaii. D-9, time 75 11 00, sequence 01, mode 02, time 76 16 00, Crew Status report on the Command Pilot at Hawaii, time 76 28 00, Crew Status report on the Pilot at Guaymas. MSC-2 and 3, time 76 40 00, sequence 04, stop at 77 00 00. Do you copy.

Spacecraft — Roger.

Houston Cap Com — D-4/D-7, 77 09 00, sequence 412, mode 02, use airglow, measure for 2 minutes, 77 33 00, flight plan report at CSQ. 78 24 00 PLA update at the RKV, 79 08 00 purge fuel cells at the CSQ. Did you copy.

Spacecraft — Roger.

Houston Cap Com — Okay, that is the end of the message.

Spacecraft — Elliott, I think that the flight plan is going real well, it is keeping us busy but not too busy, it is just about right.

Houston Cap Com — Very good. I'm glad to hear that. I'm sorry we had to cancel so many of them today due to the weather.

Spacecraft — Roger, did Mike and Ed get back all right.

Houston Cap Com — Oh yeah, they have been in and out, kibitizing and one thing and another.

Spacecraft — Did they have to stop at Brockley?

Houston Cap Com — I didn't ask them, I'll check with them when I see them.

Spacecraft — They hardly ever make it nonstop.

Houston Cap Com — Roger.

Houston Flight — Elliott, let's talk to him a little bit about this fuel cell RSS system.

Houston Flight — Frank, I really think that we have a real good handle on what these hydrogen and oxygen quantities are doing and how you are going to use the rest of them during the flight and I think you should pay attention to using these auto-heaters. Now, we are going to try and give you our best advice this afternoon, and when they give it to you, I think you ought to follow it.

Spacecraft — I have been Chris.

Houston Flight — I'm talking about the use of the Auto-heaters. Auto-positioning.

Spacecraft — I've been following any advice you gave.

Houston Flight — We are talking about leaving them in the position during the sleep period, Frank.

Spacecraft — Okay, fine. If that is what you want to do.

Houston Flight — Very good. Frank, we are real pleased how everything is going, usage of fuel and the productiveness of the flight and we just wanted to tell you to keep up the good work. Everything is looking real good for both of you.

Spacecraft — Thank you.

Houston Flight — How is the suit configuration doing now. Are you both fairly comfortable?

Spacecraft — Roger.

Houston Cap Com — You have TX on the way in about half a minute.

Spacecraft — Thank you.

Houston Flight — Frank, are you squared away with what we are doing with the orbits now?

Spacecraft — I think you are getting us in shape so you can put us up for a good window launch on either 8 or 9.

Houston Flight — That is correct.

Spacecraft — Okay.

Houston Flight — And it looks like we are going to be well within the fuel budgets to get almost a perfect 161.

Spacecraft — Good.

Houston Cap Com — Jim, could you comment on the comparison of the suit configuration versus the non-suit, that is to comfort and ease of getting around the cockpit and so forth.

Spacecraft — Well, there is really no comparison as far as ease in getting around in the cockpit. I can get back to my foodbox and waste management with no strain. I have a lot easier ways of getting around and I have stowed the suit as we had planned, or as Mike suggested. I'm dry and comfortable. During the night I got a little cold. The circulation is not as great with the suit off, in other words, there might be a damp spot someplace, and my hose in a position whereby I can get better circulation around my body.

Houston Cap Com — Roger, understand Jim.

Spacecraft — Elliott, all that would be required for perfect suit off operations in the spacecraft is the proper placement

of ventilators.

Houston Cap Com — Roger, I copied. How about this business of getting a little cooler at night. Did you feel it tended to be too cool, or could you adjust the temperature up slightly to take care of that.

Spacecraft — I could adjust it, however, I didn't want to do it because of Frank and I think it was just because (garbled)

Spacecraft — I was cool too.

Spacecraft — Frank said he was cool last night too.

Houston Cap Com — So possibly turning the temperature up a little bit it might just take care of that part.

Spacecraft — It is because we are slowed down and sleepy that we are not producing as much heat and that is why we cooled off.

Houston Cap Com — Roger.

This is Gemini Control Houston with the spacecraft heading over the hill at Antigua after flying right down the island chain, that more than likely wraps up the conversation for this pass. They should be activating MSC-2 and MSC-3 at this time leaving them on beyond Tananarive, and between Tananarive and Carnarvon they will do a cabin temperature survey, and that also wraps up the activities for the Red Team today. This is Gemini Control Houston at 73 hours 34 minutes into the flight.

END OF TAPE

This is Gemini Control. We are now 75 hours, 20 minutes into our mission with spacecraft Gemini 7. At this time the spacecraft is moving over the south Atlantic and is within voice range of the Rose Knot tracking ship. During the last hour and a half when we had no announcements from this Center, we had voice communication with the spacecraft over Hawaii, Texas and now the Rose Knot. And at this time to bring you up to date, we will play back the taped voice communication between the spacecraft and those ground stations.

HAWAII Spacecraft, Hawaii

S/C Roger, Hawaii

HAWAII Gemini 7, Hawaii Cap Com. Gemini 7, Hawaii Cap Com.

S/C Go ahead Hawaii, Gemini 7.

HAWAII OK, we're down here on the ground and we're ready for the fuel cell purge.

S/C Roger, stand by. Just want to take an S-6 picture now.

HAWAII Alrighty. We've had a loss out on C-Band beacon here.

S/C Roger, Hawaii. Check back on C-Band.

S/C Got it back now, Hawaii?

HAWAII That's right. Good solid check.

S/C You can attribute that to attitudes for picture taking.

HAWAII It pretty well could be. Let me talk to you about it after this pulse test.

S/C Can you feed up my pulse test from the last mission, I mean the last pass.

HAWAII OK. It's good and solid now. It was probably attitude.

S/C Again, Hawaii.

HAWAII The beacon's good and solid. It was probably attitude due to S-6 picture taking.

S/C OK. Hawaii, Gemini 7 purge complete.

HAWAII OK. We got all that. You need anything else?

S/C Not a thing.

HAWAII OK. This is your final controller standing by. Receive and acknowledge.

S/C Thank you.

HAWAII ....fueling.

S/C Roger, final purge. Go ahead.

HAWAII Hey, did you get my old post pass from last

time?

CAP COM Yeah, I just read it. EECOM doesn't think there's big stress. Do you want to talk to him about it?

HAWAII No.

CAP COM OK. It was just a comment. He said he would rather talk it with you if you like.

HAWAII OK. Wait one minute till this pass is finished.

CAP COM OK.

HAWAII LOS to Hawaii.

CAP COM Roger, Hawaii.

HAWAII PCM, LOS. And that LOS .... right up to the purge. The fuel cell O_2 461. Fuel cell H_2 213. ECS O_2 666. Those are all 1218.

CAP COM Rog, I copy, 461, 213, 666.

HAWAII Roger.

CAP COM Anything else?

HAWAII OK, I'd like to talk to EECOM.

CAP COM OK, stand by. He's talking with Flight right now, stand by. AFT.

HAWAII AFT, Hawaii.

CAP COM He'll come to you right after the ... pass.

HAWAII OK. Thank you.

CAP COM Rog.

CAP COM Everything looks real good on the ground.

S/C Check 745458, taking a picture of what looks to be a low forming over Mexico, a very well developed flow pattern.

CAP COM Texas go remote.

TEXAS Texas remote.

CAP COM Gemini 7, Gemini 7, Houston Cap Com. Over.

S/C Thanks Houston.

CAP COM Roger, how are things going up there, Frank?

BORMAN Good.

CAP COM Good, I got a briefing on your cryos. What we would like to suggest for you to do if you'd like to listen in.

BORMAN Go ahead.

CAP COM First of all, the ECS O_2. The pressure decrease has pretty well stabilized out to be about zero between now and the expected time that the sleep begins. It's probably going to start increasing in pressure up to about a point of 3 psi per hour and then continue a slow increase during your sleep cycle,

so what we're going to be recommending is that you keep your ECS O_2 heaters off and they're probably going to remain off through the rest of the mission.

S/C Right.

CAP COM OK, the RSS H_2.

All right. Through the sleep period, we'd like you to build it up to about 445 psi. This is an onboard reading.

S/C Read.

CAP COM This gives you about 5 hours after your sleep period before you actually hit the dome or before you actually would need heat with the present deteriorate.

S/C All right.

CAP COM So what we're going to suggest there is that you keep the RSS H_2 heater off during the sleep period.

S/C H_2 off also.

CAP COM Right. Now your RSS O_2 -- we'll give you an exact time account on this, but what we're going

to like you to do or want you to do is to go to the AUTO position on your heater probably about one rev prior to your sleep period. This will give us a chance to monitor the heater and the temperatures and watch them stabilize out.

S/C Roger.

CAP COM And we'll give you a hack exactly when we want you to go to the AUTO position on the O_2.

S/C Fine and dandy. (Garbled)

CAP COM Correct that, Frank.

S/C I'm sorry. I was trying to record that .....

CAP COM OK. ..... Houston, the rest of our pass is pretty empty. If there's anything I can pass on home for you, I'd be glad to. If not, your White Team will be watching while you're sleeping tonight.

S/C Roger. Say "Hello" to everybody for us.

CAP COM Say again, Gemini 7.

S/C I said, "Say 'Hello' to everyone at home for us."

CAP COM I sure will do right after we lose you here. I might add that everyone's fine, and everyone's very happy down here.

S/C Thank you.

RKV I guess that Jim knows that he's been called the man in the flying underwear now.

S/C Right.

Flight Texas, go local.

Corpus Texas local.

Guaymas Guaymas

Grand Turk Grand Turk

S/C 7

Flight Go ahead, Antigua.

Antigua Say, we are getting an intermittent lock on this.

Corpus Roger. We dropped off. We're back up now.

Flight . . . TM AOS.

RKV RKV Our telemetry is solid.

Flight All right RKV.

RKV . . . garbled.

Flight Roger RKV.

RKV Gemini 7, RKV CAPCOM. You need not acknowledge. All your systems are go. We are standing by.

S/C Thank you RKV. . . . garbled . . .

RKV Roger.

S/C We are doing . . . . garbled . . .

RKV Roger.

S/C Looks good down on the ground.

RKV Real nice today. RKV TO CAPCOM

Flight Go ahead.

RKV They look real good.

Flight Roger.

RKV Did you copy that experiment.

Flight Yea. I copied Borman missed 7, Lovell missed 11 and they are doing D-9 now. And they got our sequence 1, mode 1, test 5 over Mexico.

RKV Roger. I got to go on to retro . . garbled . . 250.

Flight Okay. 250. Flight, RKV.

RKV Go ahead, RKV.

Flight Did you ever get your luggage?

RKV . . garbled. I understand it is over in Rio someplace.

Flight What clothes are you wearing?

RKV I bought some . . . garbled . . . Look rather dashing.

Flight You will have to bring us some pictures so we can update our collection.

RKV I've got quite a sombrero.

That was taped voice communication between spacecraft Gemini 7 and the tracking stations at Hawaii, over the Texas state side pass and the Rose Knot tracking ship. Spacecraft Gemini 7 is now on it's 48th revolution over the earth and is now approaching the southern tip of Africa. We are 75 hours and 28 minutes into the mission. This is Gemini Control.

END OF TAPE

This is Gemini Control. We are 76 hours and 20 minutes into the flight of spacecraft Gemini 7. At this time the spacecraft is on its 48th revolution over the earth and is passing over the Hawaiian Tracking Station. During this pass the flight surgeon aboard our station at Hawaii is getting a medical pass from the command pilot. This will be a full medical status report. As we pass over the Guaymas Station area we will have a similar medical status report on the pilot. We are now 76 hours 20 minutes into the flight and the medical status report is continuing. This is Gemini Control.

END OF TAPE

This is Gemini Control. Seventy-six hours and 24 minutes into the flight of spacecraft Gemini 7, which has just passed out of voice range of the Hawaiian Tracking Station and we will bring you now the taped communication of voice - the voice of James Lovell the pilot aboard spacecraft Gemini 7 and the Hawaiian Tracking Station.

HAW Have TM solid.

HOU Roger, Hawaii.

HAW Gemini 7, Hawaii Cap Com.

S/C This is 7 Hawaii loud and clear.

HAW Roger. Hold the temperature a little bit we're - it's still raising. We show you go on the ground.

S/C Roger. Understand go on the ground.

HAW Gemini 7 we have a good oral temperature standing by for your blood pressure.

S/C Coming down.

HAW Cuff is full-scale. Have a good blood pressure standing by for your exercise.

S/C Mark on the exercise. Blood pressure coming down.

HAW Your cuff is full-scale. Have a good blood pressure. Standing by for your food, water, and sleep report.

S/C Roger. For the Command Pilot - the total water for today 298 ounces. He had one meal, Day 7, Meal C, at which time he had with it about 15 ounces of water. For the pilot - total water to date - 234 ounces. One meal, Day 7, Meal C, 12 ounces of water with the meal.

HAW Roger, Gemini 7. Do you have a total water consumption at the time of your Meal 7C?

S/C For the pilot a net total water consumption around 15 ounces during that time.

HAW 15 ounces at that time?

Roger Gemini 7. Would you turn off your biomed tape recorder no. 1.

S/C Roger. Number 1 coming off.

HAW Thank you Gemini 7, Hawaii Surgeon out.

S/C ..... the Command Pilot had 19 ounces during his mealtime.

HAW I have a C-band LOS.

HOU Roger, Hawaii.

HAW Gemini 7, Hawaii Cap Com. You have a UHF6 test over the RKV this pass.

S/C Roger.

This is Gemini Control, 76 hours and 39 minutes into our mission, with spacecraft Gemini 7 now just beginning its 49th revolution over the earth and it is approaching the northwest tip of South America. We had a few minutes ago, voice communication between spacecraft Gemini 7 and the Guaymas Mexico station. And at that time we had a medical status report on the pilot, Jim Lovell. We will now give you the taped communication over that pass.

S/C Do you read?

GYM Loud and clear Gemini 7.

S/C Are you getting the oral temperature?

GYM Roger. Coming up real good. They want you to dump the crew status report over Texas. Your temperature is up real well.

S/C Okay, thank you.

S/C . . . Garbled . . .

GYM Roger and you should be getting to Texas in about 2 minutes.

Flight This is CAPCOM Houston flight.

GYM Roger, go ahead.

Flight You are planned for the crew status report this time. So get going.

GYM Okay. Gemini 7 Guaymas CAPCOM.

S/C Go ahead.

GYM Roger they have decided to conduct it over Guaymas after all. We have a valid oral temperature. Standby. You can go ahead with your blood pressure.

S/C Blood pressure coming up.

GYM Valid blood pressure. Back to your exercise MARK.

S/C MARK

GYM Full scale. Oh oh, Jim pick it up again. Okay let it off. Valid blood pressure. Give me what you can of your suit status and your water status.

S/C . . garbled . . Okay that's all right Marv.

GYM Roger.

S/C We haven't got it CAPCOM. Everything looks real good on the ground.

GYM Roger, thank you. LOS.

END OF TAPE

This is Gemini Control. We are 76 hours and 48 minutes into the flight of spacecraft Gemini 7. At this time, Gemini 7 has started its 49th revolution and is now passing over South America. Shortly we expect to get voice acquisition at the Rose Knot Tracking Ship which is located off the East Coast of South America. Our medical surgeon here in Mission Control tells us that according to the ground data readouts, both Command Pilot Frank Borman and Pilot James Lovell are in excellent physical condition. Let's listen in now, we have acquisition, to the voice communication with the Rose Knot.

RKV Gemini 7, RKV Cap Com.

S/C This is 7 RKV, go ahead.

RKV Roger. All systems are go. We'd like to give you a status report on the G&C systems. Your OAMS heaters seem to be working well. Your thruster temperature range is from 60 to 80 degrees when the ACQ meter is powered down. Your thruster temperature ranges are from 80 to 105 degrees during use in the PULSE mode. Your source temp and other system temperatures as stabilized in a range from 55 degrees to 65 degrees. In some ways the system looks beautiful.

S/C I'm glad if it does.

RKV Your RCS source pressures have stabilized at 3K psi and the temperatures have stabilized at 65 to 76 degrees.

S/C Looks like we have a pretty good form now.

RKV Roger. As far as the computer goes, everytime we see the computer on it looks completely normal; all updates have been verified on the ground by reading out the memory.

S/C Roger.

RKV Your fuel-cell water pressures indicates your consumption of water is equal to the amount produced. Over your coolant loops temperatures are nominal, your radiator outlet temps are running 0 to plus 10 degrees, and your suit heat exchanger inlet temp is constant at 47 to 48 degrees.

S/C Sounds like we're serious about that 2 weeks.

RKV That's affirm.

By the way; the next hour and a half of uninterrupted mood music on HF will be brought to you by the compliments of station WRKV. Among the selections are the excerpts from La Boehme by Puccini, Symphony No. 3, the Reinich by Schumann, ... by the Fantastics, Symphony No. 2 by Rachmaninoff, the Lawrence of Arabia Overture, and Water Music by Handel.

S/C That's dandy!

RKV We're sorry, but there'll be no inflight movies tonight.

S/C And no ...

RKV All systems look good, flight.

HOU Roger, RKV.

This is Gemini Control. We are listening to live communication - voice communication between the spacecraft Gemini 7 and the Rose Knot Tracking Ship. Jim Lovell is the astronaut who is responding from the spacecraft at this time.

HOU RKV Cap Com Houston Flight.

RKV Houston Flight RKV.

HOU Roger. Are you getting any of that HF music down there, Bill?

RKV I can hear it in the background.

HOU Okay. I was wondering whether any of the other sights in the network were getting it. How's the weather down there?

RKV It's real nice. In fact, it's too bad the crew couldn't have let down last night. We could see Jupiter and about 5 of her Bullets.

HOU You got much of a swell out there?

RKV No. It's real, real smooth.

HOU How about the temperature?

RKV It's real comfortable. In fact, I had a suntan started until we started .....

HOU Okay, how about your return reservations. Where're you coming back through, Rio?

RKV If I don't get home for Christmas, I'd better not even go home! We're checked out on the 22nd at Rio. Should be home the morning of the 23rd.

HOU Okay. I understand they have your luggage down there in Customs. Is that your impression also?

RKV Yeah, that's what they tell me but I don't believe it.

HOU You know, it was shipped to LA from Miami, it went in the wrong direction.

RKV I find that hard to believe.

HOU It's supposed to be there, Bill, and all you need to do is - - -

RKV Let me tell you what happened. I bought a Banlon shirt - a red one - and I bought some scivvies and some socks and I put the Banlon shirt in the washer with all my clothes that I bought and now I - everything I'm wearing is pink!

HOU Sounds like you might be able to dub in for Santa Claus out there on that ship.

RKV Yeah, I look like it.

HOU Well, better luck next time.

RKV I got that on a recording flight, next time, ok?

HOU Okay. We'll see what we can do.

RKV All righty.

HOU Well, it looks like it's going to be a quite night. It looks like we're going to be ready to settle down here in about another hour and a half or two. How do you like that silent running?

RKV I like it.

HOU Just wait. We'll get 6 up there pretty shortly and that'll give you plenty to do.

RKV I think we ought to fly three commentors, keep one of 'em awake all the time to talk to us.

HOU I'll talk to you.

RKV Ok. That's what I'm afraid of.

HOU By the way, I haven't read your summary you sent us in last night and that hypothetical problem I gave you.

RKV What was your - have you given us a grade on that report we gave you?

HOU No. I'll tell you what though. I'll go over it and write up why I thought we should have gone a different way.

RKV That'll be interesting.

HOU I didn't concur with the CSQ's evaluation. You know, I think as these missions get longer here, particularly in this one here as it goes toward the end of it, I think it would probably be pretty good to go through some missions rules review, flight plan, and that type of stuff.

RKV Well you remember, for one thing we didn't have the data readily at hand that we have at the Control Center and that has a lot to do with the decisions you make.

HOU Yeah, I think that's true. I think we could probably give you a lot better update, in fact, I think we've got a pretty good one now on the status of our cryos RSS and ECS and I'll make sure this dope gets out and let you do some plotting out there on these dome curves.

RKV Rog. We've had LOS. Now we've got it back in now.

HOU Ok.

That was voice communication three ways between at first, spacecraft Gemini 7, talking to Bill Garvin, the spacecraft communicator aboard the Rose Knot, and it wound up with a conversation between our Flight Director here in Mission Control, Gene Kranz, and Bill Garvin, aboard the Rose Knot. The crew during the communication between MCC and Rose Knot, were engaged in preparations for Experiments D-4/D-7, the Celestial Radiometry Experiment, D-4, and D-7, Radiometric Observations of Objects in Space and therefore they cut out of the conversation. We are now 76 hours 57 minutes into the flight. Spacecraft Gemini 7 is passing over the South Atlantic on its 49th revolution over the Earth. We have coming up aboard the spacecraft, following the D-4/D-7 Experiments, an exercise period for the crew to be followed by the housekeeping procedures that they go through, putting away all the gear, stowing things that they've used throughout the long day in space and getting ready for their meal, which is then followed with a sleep period. This is Gemini Control 76 hours 58 minutes into the mission.

END OF TAPE

This is Gemini Control. We are now 77 hours and 20 minutes into the flight of spacecraft Gemini 7. At this time our spacecraft of the Indian Ocean on its 49th revolution around the earth. We have had no voice communication with spacecraft Gemini 7 since it passed over the Rose Knot quite some time ago. At that time we did have live voice communications with the Rose Knot and we did broadcast that pass live. Aboard the spacecraft our pilots are engaged now, according to the flight plan, with a housekeeping period and an exercise period that are coming up. And then they will eat and retire for a sleep period. Aboard the spacecraft according to our ground data, all systems are go and the astronauts are in excellent physical condition. This is Gemini Control at 77 hours and 21 minutes into the flight.

END OF TAPE

This is Gemini Control. We are now 77 hours and 43 minutes into our mission. Spacecraft Gemini 7 is now passing over the Pacific Ocean and very shortly, in approximately 10 - 15 minutes, will come up over the Hawaiian Tracking Station. Just a few minutes ago, the spacecraft passed over the Coastal Sentry Tracking Ship, and at that time we had communication between the tracking ship and pilot Jim Lovell aboard spacecraft Gemini 7. And at this time we will play the taped voice communication.

CSQ Gemini 7, CSQ

S/C Go ahead CSQ, Gemini 7.

CSQ Roger, we have you go on the ground. We're standing by for your flight plan report.

S/C Roger. Today we've used one magazine of SO217 Standard Hasselblad; 14 frames from the second magazine; we've shot six frames of color .....in; 5 frames of Hasselblad high-speed black and white. One frame of Hasselblad [illegible] low-speed black and white. We've used two magazines of 16-mm movie film; two tape recorder cartridges, and I gave off .... S-8/D-13 ..... (garbled) ...before 11 this morning.

SCQ [illegible].

S/C Roger. Borman minus 7, Lovell minus 11 for S-8/D-13 mission tests this morning.

CSQ Roger, copy.

S/C Our ..... fuel now reads 57 percent.

CSQ Roger.

S/C ..... CSQ

CSQ ..... Gemini 7 I got it.

S/C Thank you.

CSQ Flight, this CSQ

HOU I got it, CSQ.

CSQ Roger, all the facilities have gone out here, they're go on the ground, and we'll try to get on this flight plan report into a postponed.

HOU Okay. Very good.

Have you got a tape recorder handy out there?

CSQ Haven't heard it.

HOU They're pretty handy. We use them back here quite a bit.

CSQ Yeah, we could probably do without it . . .

HOU It sure saves a lot of repeats that would really tie it up getting a report like that across.

CSQ Yeah. Our little hand-carriage recorder has gone out but the COMTEX has got one.

HOU That right? Fortunately mine is still working, this is the longest I've ever had one work.

CSQ You have that thing fixed pretty regularly.

HOU About three a mission.

S/C CSQ Gemini 7.

CSQ Go ahead, Gemini 7.

S/C (garbled) knocked out the electronic circuit breaker, our time recorder circuit breaker, would you give me a time hack, please.

CSQ Roger. G.e.t. time hack. 77: 37 on my mark. 40 seconds to mark. 4,3,2,1, Mark. 77 hours 37 minutes 00 seconds.

S/C Thank you very much .....

HOU CSQ, Houston Cap Com.

CSQ Go ahead, Flight.

HOU Roger. We'd like confirmation from the crew that they have completed all of the flight plan activities we had scheduled for them today.

CSQ Roger.

Gemini 7, CSQ

S/C Go ahead, please.

CSQ Have you completed all flight plan scheduled items for today?

S/C Roger. All except that were deleted by weather.

CSQ Roger, understand. Thank you.

You copy, Flight?

HOU Roger.

What's the lag in SET now?

CSQ Flight, we're completing that but the TR shows minus 3 seconds.

HOU Okay.

CSQ It's probably up to 3 seconds because (garbled)

HOU Roger.

CSQ Flight, CSQ.

HOU Go CSQ.

CSQ SET lags 9 minutes 41 seconds.

HOU Roger.

CSQ Flight, CSQ

HOU Go ahead, CSQ.

CSQ Both of our ..... recorders are now off.

HOU Okay, I'll stand by and see if they're supposed to be.

That's affirmative, CSQ. They're both supposed to be off.

CSQ Roger.

CSQ CSQ has LOS. All systems go to AUTO.

That was taped voice communication three ways between spacecraft Gemini 7, the Coastal Sentry Tracking Ship, and our Flight Director at Mission Control, Gene Kranz. The voice from Coastal Sentry was Harold Draughn, the spacecraft communicator. In the spacecraft talking for the flight crew was Jim Lovell. This is Gemini Control, 77 hours 49 minutes into the flight of spacecraft Gemini 7, which at the present time is on the last leg of its 49th revolution.

END OF TAPE